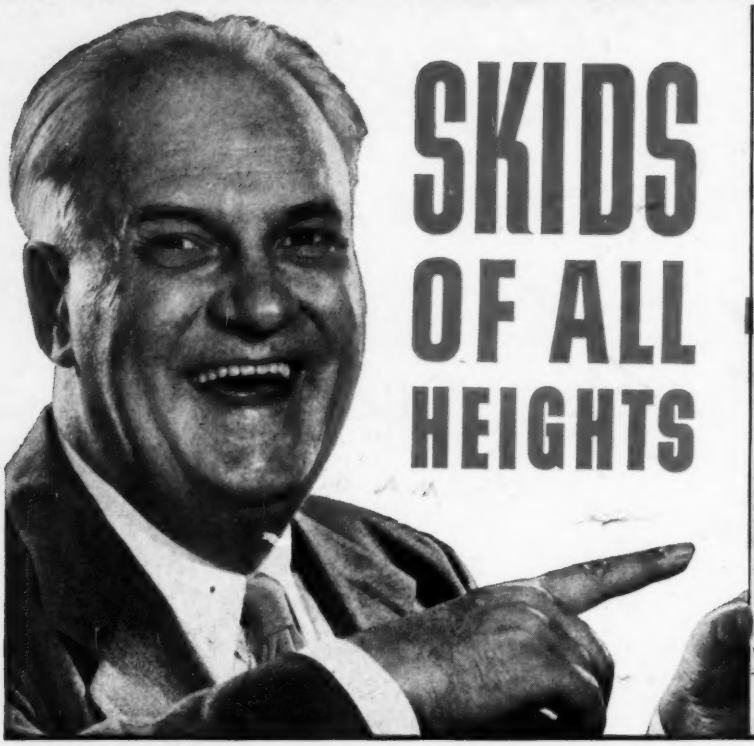
DISTRIBUTION AGE

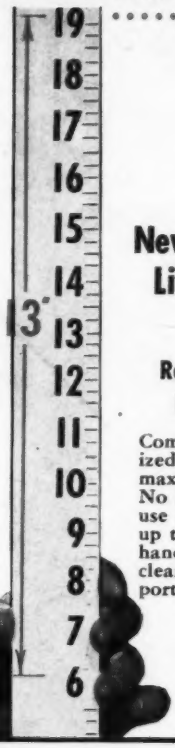
SEPTEMBER, 1947

THIS MONTH: SYSTEMS AND EQUIPMENT

At Last! A Motorized Handtruck that Handles



SKIDS OF ALL HEIGHTS



New Vertical Hydraulic Lift Raises Platform 13 INCHES!

Raises Load from 6 to 19 inches from the floor!

Compare this with other motorized hand trucks that raise to a maximum of only 4 to 6 inches. No longer is there any need to use separate trucks or to build up the platform with blocks to handle skids of various underclearances. New Hyskid Transporter handles them all!

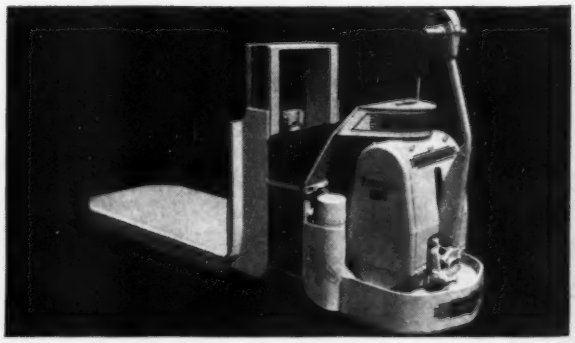
Now ALL Industry Can Cut Handling Costs With

Hyskid Transporter

Let us show you how this amazing new Transporter solves the problem of difficult ramps and underclearances—cuts material handling costs as much as 50%! Mail the coupon.

Hyskid Transporter will handle the many varying heights of skids used in industry today—and still leave ample clearance to negotiate ramps. This means miracle electric handling of materials with easy fingertip control is now available to all industry—replacing gruelling, back-breaking costly manual handling.

Equipped with the standard ATCO Electric Lift, Automatic's new Transporter will raise the full 13 inches in 12 seconds loaded, or 8 seconds empty. Capacities 4000 and 6000 pounds. Power consumption is so low, the same standard Transporter 11-plate battery is used.



Remember:
Only Automatic Makes the Transporter

MANUFACTURERS OF THE FAMOUS TRANSPORTERS, TRANSTACKERS AND SKYLIFT ELECTRIC TRUCKS

Transporter
A PRODUCT OF AUTOMATIC
Lightens LIFE'S LOADS

AUTOMATIC TRANSPORTATION COMPANY
DIV. OF THE YALE & TOWNE MFG. CO.
115 West 87th Street, Dept. P7, Chicago 20, Ill.
Please send me complete information on your New HYSKID TRANSPORTER.
( ) Have an ATCO Material Handling Specialist make a free survey of my handling costs.

Company Name.....
By.....
Street Address.....
City.....*State*.....

Material Handling at First U. S. Tin Plant

—built around BAKER TRUCKS

"After four years operation Baker Fork Trucks continue satisfactory . . . in our Texas City Plant"
— Tin Processing Corporation

Baker Fork Truck removing pallet-type crates of bagged ore from flat car.

● The continuous operation of the Tin Processing Corporation's Texas City plant—largest tin smelter in the Western Hemisphere—built to meet our war requirements—depends on the durable and reliable service of a fleet of Baker Trucks.

Ore arrives by vessel in 100 lb. bags, which are palletized at the wharf and loaded by a Baker Fork Truck onto flat cars, for transportation to the plant. Here another truck unloads and stores the pallet type crates.

Positioning crate of ore on raised deck alongside hoppers of crushing machine.

As ore is needed, a fork truck carries a crate to the mixing hopper, placing it on a raised deck, from which bags are emptied into the hopper. After crushing and purification, ores go to the smelter for reduction to metal and casting into bars. Stacks of bars weighing 4,000 lbs. are carried by truck to storage and later to box cars for shipment.

Besides Baker Fork Trucks, the plant uses a Baker Hopper Truck with built-in scale for measuring batches going to smelting furnaces.

Management and maintenance men are enthusiastic about the trucks—particularly because of their excellent service under the difficult operating conditions caused by the relatively fine and gritty nature of the ore handled.

Let a Baker Material Handling Engineer show you how to improve your production efficiency.

BAKER INDUSTRIAL TRUCK DIVISION
of The Baker-Raulang Company
2176 West 25th Street • Cleveland 13, Ohio
In Canada: Railway & Power Engineering Corp., Ltd

EITA

Member: Electric Industrial Truck Association

Baker INDUSTRIAL TRUCKS

"Only TWA gives you this timesaving, troublesaving Memo Tariff!"

Now that all scheduled airlines in the United States are jointly operating under the new Consolidated Industry Airfreight Tariff, TWA announces an official tariff schedule that is unique in the industry.

TWA's Memo Tariff will include a map and zone indicator localized to every key city along TWA's route.

For example, it will enable a shipper in Chicago to see the zone indications out of Chicago in all directions *on all airlines,* without referring to a complicated table requiring time-consuming calculation.

This Memo Tariff is only one of many extra services performed by TWA twenty-four hours a day — services that increase speed and decrease trouble for airfreight shippers everywhere.

Your Copy of the TWA Memo Tariff can be obtained free of charge from the nearest TWA Airfreight Office. Write, telephone or drop around in person.

TWA's the way to ship—
for Airfreight Flies On Every Trip

TWA
TRANS WORLD AIRLINE

TWA flights also carry air mail.

DISTRIBUTION AGE

The Magazine That Integrates All Phases Of Distribution

100 E. 42nd St., New York 17

THIS MONTH'S COVER

Illustrative of Systems and Equipment in distribution is described on page 90.

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VOL. 46, NO. 9 **September, 1947**

Special Features

Departments

STATEMENT OF POLICY . . . Our policy is based on the premise that distribution embraces all activities incident to the movement of goods in commerce. If distribution is to be made more efficient and economical, we believe business management must consider more than sales, because more than sales are involved. Marketing, while vital, is one phase only of distribution; seven other practical activities not only are necessary but condition marketing costs. Most commodities require handling, packing, transportation, warehousing, financing, insurance, and service and maintenance of one kind or another before, during or after marketing. We regard all of those activities as essential parts of distribution. Hence, the policy of DISTRIBUTION AGE is to give its readers sound ideas and factual information on methods and practices that will help them to improve and simplify their operations and to standardize and reduce their costs in all phases of distribution.

This Number 707 stands for Efficient Truck Service

● It's the muster of Mack branches and dealers —707 strong—a far-reaching network we've set up throughout the United States and Canada for sales and service on Mack trucks.

It includes 67 Mack direct-factory branches strategically located in main industrial and trading areas. Each is manned by factory-trained experts who are constantly kept informed of improved service methods. Each is equipped with specialized Mack service tools that assure time-saving, money-saving precision work. And each is stocked with genuine high-quality Mack parts—parts that fit better and wear longer.

In more than 600 other communities Mack dealers—selected and responsible leaders in their field—also stand ready to give fast, on-the-spot service to Mack owners.

This means that no matter where your Macks may roll—there's always a source of authorized service and factory-made parts within easy reach.

It didn't just happen that way. We planned this service network as carefully as we plan every nut and bolt in a Mack truck.

Macks are built to need less service than other trucks. Our organization is built to make that service easy to get.

Mack

since 1900, America's hardest-working truck

Mack Trucks, Inc., Empire State Building, New York 1, New York.
Factories at Allentown, Pa.; Plainfield, N. J.;
New Brunswick, N. J.; Long Island City, N. Y. Factory
branches and dealers in all principal cities for service
and parts. In Canada, Mack Trucks of Canada, Ltd.

Trucks for every purpose

lading better protected
damage claims reduced *with*
NAILABLE STEEL FLOORING!

Nailing guide strips in place on Nailable Steel Floor for transportation of a skidded "floating" load which previously required a wood floor. After 18 months of the roughest steel mill service, this Nailable Steel Floor retains the over-all flat contour and frictional resistance necessary for skidded loads.

Carriers and shippers *both* benefit from Nailable Steel Flooring. Goods in transit are safer—and so are men working in cars. Here's why Nailable Steel Flooring *cuts damage claims* all around:

STRONGER NAIL GRIP—Blocking is more secure because Nailable Steel Flooring has up to 400% greater nail-holding force than wood. Yet nails can be removed readily without damage to the floor.

NO SPLINTERS OR SHARP EDGES—Nailable Steel Flooring is smooth—channel edges are rounded. Men can't be injured or freight damaged by splinters or sharp edges.

NON-ABSORBENT—EASIER CLEANING—Spilled liquids are not absorbed and can be cleaned off to avoid contaminating subsequent freight. The flat, smooth surface makes cleaning quick and easy—with increased car availability.

FREIGHT HANDLING SIMPLIFIED—Lift trucks can't break through Nailable Steel Flooring. Protective plates are unnecessary. Clamshell buckets can't rip up the channels. Freight handling is easier, safer.

Because it handles all types of freight and is built to last as long as the car itself, Nailable Steel Flooring also reduces maintenance and operating costs. Write for a free booklet about this new flooring and the three-way saving it brings you.

Cross section of Nailable Steel Flooring with wood blocking secured on top. Nailing grooves are spaced for ordinary 20d nails. Channels are welded to the underframe, strengthening the entire car. A self-sealing plastic in the grooves prevents loss of fine freight carried in bulk.

NAILABLE STEEL FLOORING

A GREAT LAKES STEEL PRODUCT

GREAT LAKES STEEL CORPORATION

STEEL FLOOR DIVISION, PENOBSCOT BLDG., DETROIT 26, MICHIGAN

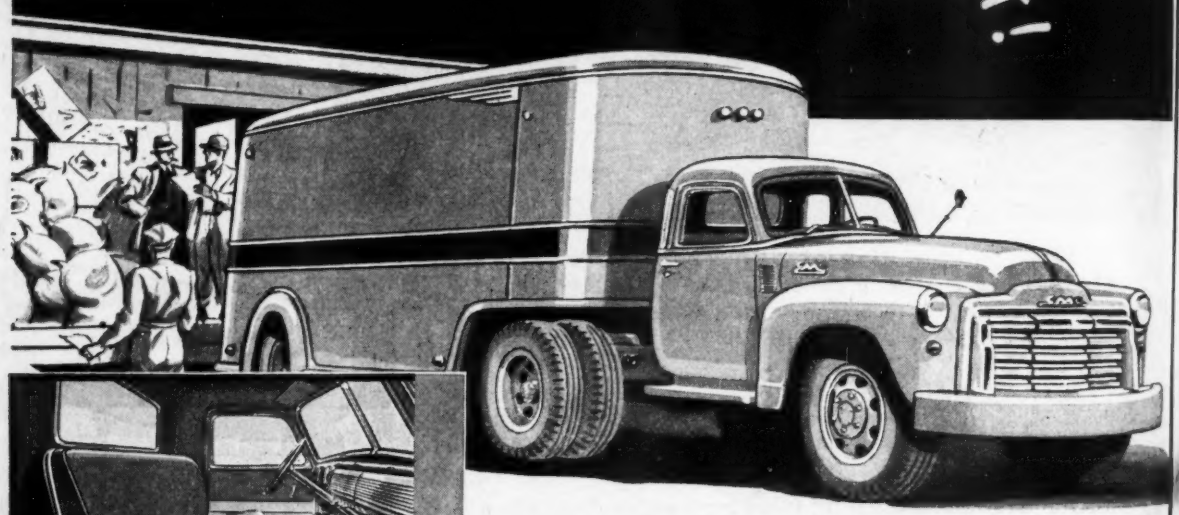
UNIT OF NATIONAL STEEL CORPORATION

New GMCs

BETTER LOOKING!

BETTER RIDING!

BETTER BUILT!



THE LAST WORD IN
CAB COMFORT

There's comfort galore in the cab of a new light or medium duty GMC! It's all-steel . . . wider and longer . . . completely insulated and soundproofed. Its adjustable seat has 73 individually wrapped springs . . . heavy upholstery and padding. Its windshield is higher and wider . . . visibility greater all around. Its unique ventilation system provides circulating fresh air . . . heat if desired. Dome light, ash tray and sealed-on handles are three of its many finer appointments.

Out front, there's added protection with rugged bumper bar grille, frame-mounted and angle-braced. Under the hood, there's war-proved, improved power with engines of "Army Workhorse" design. Under the load there's solid strength with heavier axles and frame. And overall, there's a complete range of chassis and body types with a smartly styled model for your job.

GMC TRUCK & COACH DIVISION • GENERAL MOTORS CORPORATION

THE TRUCK OF VALUE GMC TRUCKS GASOLINE • DIESEL

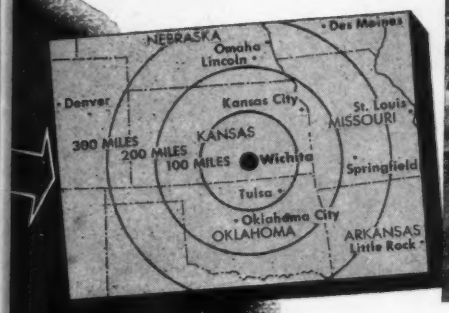
LOCATE YOUR BUSINESS

SEALED BIDS:

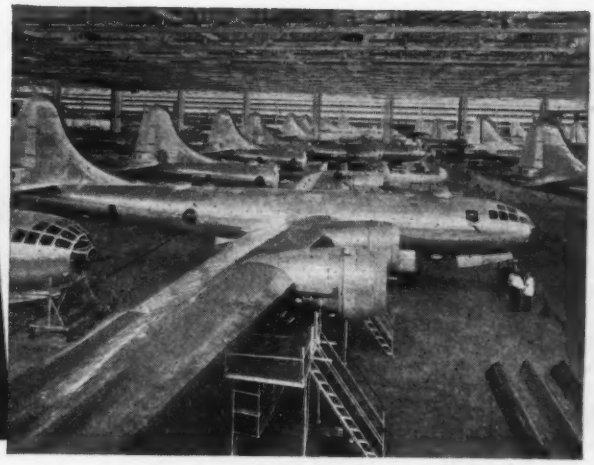
Your sealed proposals, on Standard Bid Forms, will be received by War Assets Administration, Office of Real Property Disposal, P. O. Box 1037, Troost and Bannister Road, Kansas City 5, Missouri, until 12:00 noon, C.S.T., October 1, 1947, at which time all proposals will be publicly opened and read. This property is offered, subject to the National Security Clause and War Assets Administration Warehousing restrictions.

All requests for brochures and bid forms should be addressed:

WHERE THEY BUILT THE FAMOUS B-29's



WAREHOUSES?



Now industrial plant space is available near fast-growing Wichita. This is your opportunity for business location in this rich, Kansas agricultural belt and oil production area.

This large, modern facility, 14 main buildings, has been tentatively subdivided to accommodate a group of users. Plant, office and warehouse space, in portions adaptable to your individual requirements, is available for sale or lease.

Some milling, meat packing, aviation, farm implement and oil equipment producers have already "discovered" Wichita. Now other manufacturers, distributors, fleet operators, to name just a few, can locate in ready-to-operate plant sites here.

THE BUILDINGS
range in size up to almost 1,711,000 sq. ft. occupying an area of approximately 185 acres. Main manufacturing building, 1191 ft. x 1133 ft., structural steel frame, brick walls with concrete floors; administration building, 169,000 sq. ft., 3-story, steel frame, brick walls, air-conditioned; hangar building, 73,500 sq. ft.; camouflage building, 30,000 sq. ft.; warehouse (3) 825,000 sq. ft.; personnel building, 30,000 sq. ft.; salvage building, 28,000 sq. ft., and others.

UTILITIES
—water, gas and electric supplies are available at rates favorable to industry.

TRANSPORTATION
—concrete roads, well distributed throughout the plant, connect with paved highways. Manufacturing, hangar and warehouse building rail spur lines are served by sidings of the Santa Fe Railroad. Both rail and truck docks serve the warehouse area.

COMPLETE PROPERTY DESCRIPTION:
Write now to the address below for a complete and detailed property description. An illustrated brochure will be sent on request. Ask for information on Plancor 139, Boeing-Wichita.

1327-T

WAR ASSETS ADMINISTRATION
OFFICE OF REAL PROPERTY DISPOSAL

GOVERNMENT WAA SURPLUS

P. O. BOX 1037 • TROOST AND BANNISTER ROAD • KANSAS CITY 5, MISSOURI

Here Are Typical Cost-Conscious Trailer Users Who Recently Added Stainless Steel Fruehaufs To Their Present Fleets!

Ziffrin Truck Lines	25
Spector Motor Service, Inc.	50
Midwest Transfer	10
Chicago Dubuque Motor Transportation Co.	8
Decatur Cartage	50
Akers Motor Lines, Inc.	100
Johnson Motor Lines	14
Hoover Motor Express	14
H. E. Savage, Jr.	100
Byron Transfer	10
Santa Fe Trail Transportation Co.	150
Watson Brothers	24
Bonney Motor Express	10
Bos Truck Line	11
Denver Chicago Trucking	40
Lee Way Motor Freight, Inc.	13
Prucka Transportation	4
Wilson Forwarding Co.	8
Western Transportation	15

..AND STAINLESS STEEL TRAILERS BOOST PAYLOADS–REDUCE COSTS TREMENDOUSLY

SINCE the first Fruehauf Stainless Steel Trailers were built in 1940, motor transport men have been learning by experience how these units increase earnings. These lighter-but-stronger Vans — now greatly improved — are being adopted by cost-conscious companies in quantities that say ***Stainless Steel is a better investment all ways!***

ONLY STAINLESS STEEL OFFERS ALL THESE FEATURES!

Lasting Beauty • Greater Durability • Metal Won't Rust or Corrode • Eliminates Painting • New Weight-Saving Strength for Bigger Payloads Low Maintenance Costs

World's Largest Builders of Truck-Trailers

FRUEHAUF TRAILER COMPANY
DETROIT 32, MICHIGAN

10 Factories — 67 Factory Service Branches

FRUEHAUF TRAILERS — "ENGINEERED TRANSPORTATION"

EDITORIAL

Distribution Efficiency

MORE than a year ago, we questioned in this column the accuracy of the frequently heard statement that 59c. of every consumer dollar represented the cost of distribution. We questioned the validity of this statement on the ground that distribution costs are variable and continuously changing and that the percentage varies so radically not only between dissimilar products but between different companies selling the same product that the use of any average, particularly an average based on questionable statistics compiled nearly twenty years ago, gives an entirely erroneous picture.

We further objected to the use of this statistical deduction on the ground that many business men in positions of responsibility and authority frequently repeat this 59c. figure and thereby create an illusion of precision which is not only absurd and fallacious but also, in a sense, dangerous since it tends to divert attention from the urgent need that exists for more comprehensive and continual research and analysis of distribution costs. Because, as we then pointed out, different costing methods, the lack of standards and disagreement as to what constitutes distribution and what its costs, we cannot see how such an average on total distribution could even be calculated.

Equally misleading, in our opinion, is the statement currently heard that distribution costs too much. Obviously, distribution costs are too high only when the opportunity exists for effecting economies without any curtailment in product quality or in services rendered. Since neither the costs of creating markets nor the costs of serving these markets when created through improved efficiency in the physical problem of getting products into the hands of consumers can be predicated solely on the other fellow's efficiency, we have no secure basis for the charge that distribution costs too much. It is more to the point, we submit, to say instead that distribution is too often inefficient. That there is a sound basis for this assertion is continuously being demonstrated by the substantial economies currently being realized in some progressive departments of distribution by the use of modern systems and equipment.

But until it is more generally recognized that distribution is the total of all activities involved in the flow of goods from producer to ultimate consumer or user, this progress of necessity will be sporadic and limited. It is a regrettable fact that relatively few firms actually know their distribution costs or are able to make a functional cost breakdown of their basic operations. Lacking this essential information, it is difficult to conceive how any intelligent or systematized approach can be made to the problem of improving overall efficiency in distribution.

Obviously, there is something wrong when, as revealed in a recent DISTRIBUTION AGE survey, the costs of handling, transportation, finance, insurance, packaging and packing, warehousing and service and maintenance all can be charged off to transportation and warehousing, for example, or to one or two other distribution functions. In many highly competitive industries marketing costs, to a large extent, are determined by functional efficiencies and economies in what are termed the physical phases of distribution, particularly handling, packing, transportation and warehousing. Consequently, the physical aspects of distribution, in many cases, are an immediate and vital concern of top management. But too often functional authority is spread among so many departments of a business that functional costs are absorbed or hidden under production or administrative costs. When this is the case it is difficult, sometimes impossible, to "put the finger" on inefficient operations. It is imperative that top management turn its attention to physical distribution because it has been demonstrated by many firms that substantial savings in distribution costs are possible in these categories.

Distribution costs are an integral part of total costs, but economies in both the marketing and physical phases of distribution can have but a limited and minor effect on our economy unless the savings that result are passed on to the consumer in the form of lower consumer prices. We agree wholeheartedly with Charles H. Sevin, of the Marketing Division of the Department of Commerce, when he says: "An overall reduction in unit marketing costs achieved through an advance in efficiency would facilitate an expanding volume of employment. But in order to affect total employment favorably, these cost savings must be passed on to the consumer either in the form of lower prices or better products—or in some other way—or they must be translated into additional expenditures on improved plant and equipment. Otherwise, if they are not passed on, improvement in efficiency and cost reduction could even reduce the volume of the circular flow of money thus restricting total output and employment."

D. J. Witherspoon

Editor

NEXT MONTH

THE October issue will describe developments and trends in air transportation. Some of the features scheduled include:

DEVELOPMENTS AND TRENDS IN AIR TRANSPORTATION . . . New, low-cost air freight services, which have become a nationwide institution, are having a profound effect on our national distribution system . . . Staff correspondents and leading air transportation authorities will discuss the facts and implications of current trends and developments in air transportation and the need for more efficient coordination with other distributive agencies.

●

MOTAIRCARGO TODAY . . . Dr. John H. Frederick will outline trends and developments in motaircargo and the need for adequate ground pick-up and delivery services within terminal areas in order to provide a through air cargo service between all points in the United States.

●

AIR FREIGHT AT COST OF 3.9 CENTS PER TON MILE . . . Some interesting facts about the new Boeing Stratofreighter which, it is said, will operate at a direct cost of 3.9 cents per ton mile, and will transport a maximum pay load of 41,000 pounds at a speed of from 300 to 350 miles per hour at an altitude of 30,000 feet.

●

THE COOPERATIVES . . . by D. B. Chase, L. K. Lasser & Co. The cooperative movement in this country, Mr. Chase states, is becoming a tax fostered Frankenstein. In this article he tells us that more than 800 thousand of these organizations, with an income of five billion dollars, evade taxation with the acquiescence, if not the blessing, of the law.

●

AIR FREIGHT SAVES DOLLARS . . . C. E. Baxter, Traffic Manager, Lockheed Aircraft Corp., will demonstrate in an unusual article, that shipping by air is frequently cheaper than by other forms of transportation . . . Mr. Baxter urges all traffic managers to re-examine their present shipping procedures in the light of his surprising experiences.

LETTERS to the Editor

Air Freight

Sir:

The writer has read with much interest Dr. Frederick's articles on "Freight Forwarders and the CAB", particularly since air freight could be a most influential factor in sale and subsequent delivery of our products, which incidently are distributed internationally.

Our interest in this type of transport was aroused late last winter when two Army Transports swooped down at the Akron, Ohio Municipal Airport, picked up some 15 tons of our Prefabricated Insulated Pipe Units, delivering same to their home base near Omaha, Neb. for complete installation the same day they were factory assembled. This, of course, was an emergency flight order since fire and explosion had gutted the steam heating system of the Fort Crook Barracks. The speed of delivery and installation not only impressed the U. S. Army but also our sales staff.

Singularly, one of our units' strongest selling points is the prefabrication of pipe under ideal factory conditions, eliminating 80 percent of field labor and time in installation, and it follows, that by air transport a complete central steam heating system could be installed in record time, not only in an emergency, but also to save time and thus money for installing contractors. In compiling comparative freight charges, however, it was ascertained that air transport was from three to five times the rate of rail, much too great a handicap for a contractor to assume unless under extreme conditions of contract time obligations.

It should also be called to your attention that our finished units are composed of standard 12 ft. lengths of steel or iron pipe, asbestos, fibreglas, rock wool or cork insulation, cement agregate, asphalt and many other items taking various freight classifications, and after many years consideration were reclassified some five years ago at a more satisfactory rate. Even though the fact was brought to the attention of air freight forwarders that because of the extreme care taken in prefabrication and preparation for shipment, no claims were entered for rail breakage, exorbitantly high rates were quoted us which precluded our utilization of commercial air transport.

It was not made clear who, other than the air transport outfits themselves, governed rates or whether the same classification applied to our products on rail shipments was utilized in computing air transport rates, or whether they ever would be. It would seem to the writer that air transport forwarding will require a form of reorganization affecting stability of rates, classification or products similar to rail rate structure and above all comparable or only slightly higher rates than rail if the expansion in use of these facilities, which you predict, is to actually come true. We, as one potential customer, would favor this type of transportation, subject of course to the above corrections.

It would be most interesting to have your comments to the foregoing, also your opinions on whether there was a possibility of realizing an "about face" in the air transport industry in the very near future.

—Walter L. Bartel, Director, Public Relations, The Ric-Wil Co., Cleveland.

Editor's note: Dr. Frederick's reply is as follows:

Your most interesting letter has been forwarded to me by DISTRIBUTION AGE. Thank you for writing me.

The Civil Aeronautics Board has control over air cargo rates the same as the Interstate Commerce Comm. controls rail rates. This control is, however, more apparent than real for both agencies as of course thousands of rates go into effect each year without having been passed upon by either agency directly. All that has to be done is for the carriers to file the rate and if no objection is filed eventually they become effective.

You are probably aware that on Aug. 1 a consolidated air freight tariff became effective. This marks the first time in the history of transportation in the United States that a single mode of transportation will operate under just one tariff pattern for the entire country. There will be no commodity rates. Starting with a minimum weight of 25 lb. per package all rates are on a weight and class basis which will average 20c. a ton-mile for shipments of 100 lb. and down to 14½ to 15½c. for volume shipments. Some of the non-certificated air carriers are going to quote rates even lower.

I agree with you that if air cargo is to take over the mass transportation job of the rail carriers rates will have to be much lower. But I do not believe that this is the intention of the airlines or that it would necessarily be a good thing if it came about. I do believe that a new era for business is now opening up with the expansion and extension of air freight facilities in a combined air-ground network brought about by coordinating air and motor facilities. This will do much to change the merchandising and inventory methods of American business and, as you say, will greatly affect the

(*Concluded on Page* 56)

There's a "Job-Rated" truck like this

...to fit YOUR job, save YOU money!

Take a good look at this truck! It's a "*Job-Rated*" truck—a truck built to FIT a specific hauling job.

This truck has "*Job-Rated*" power—the right one of seven great Dodge truck engines for pulling its load . . . dependably, and *economically.*

It has exactly the right clutch, transmission, springs, frame, rear axle—the right units throughout—for longer-lasting, more dependable service.

Such a truck performs better, enables its owner to give better service to his customers, lasts longer, and saves money.

There's a "*Job-Rated*" truck to fit YOUR job, too!

To get such a dependable and economical truck—simply explain your hauling problems in detail to your Dodge dealer. He will select the right Dodge "*Job-Rated*" truck for YOUR job.

★ ★ ★

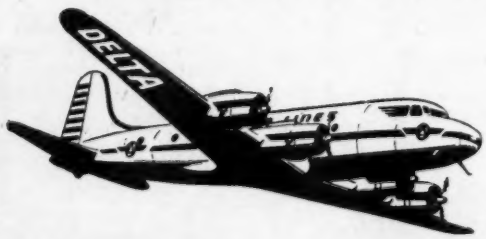
Your Dodge dealer is interested in your continued satisfaction: *First*, by selling you a truck that fits your job; *Second*, by giving you dependable Dodge truck service; *Third*, by providing you with truck parts that are identical with original Dodge "*Job-Rated*" truck parts.

DODGE

ONLY DODGE BUILDS "*Job-Rated*" TRUCKS

Fit the Job . . . Last Longer!

USE DELTA AIR FREIGHT!



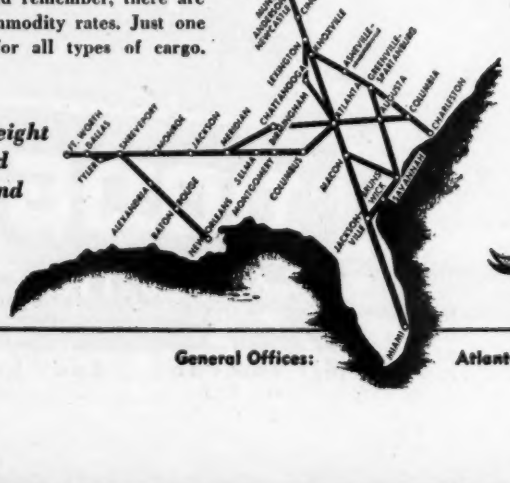
for High Speed Deliveries TO and THRU the South

NEW LOW RATES——
Rates on Delta Air Freight have been reduced from 20 to 25 per cent over the entire system. And there is now only one rate for all shipments of 100 pounds or over. You get the lowest possible rate, whether it's 100 pounds or ten tons. Delta's pick-up and delivery service is optional; you don't pay unless you use it. And remember, there are no special commodity rates. Just one straight rate for all types of cargo.

Put this nightmare out to pasture. Use Delta Air Freight and forget your shipping problems. One phone call handles the entire job for you: pick-up, shipping and delivery. No delays from your door to airport, no delays en route, no delays in delivery.

You get this speed because Delta Air Freight is carried on every passenger schedule. It's especially valuable on shipments south through Chicago, Cincinnati and Knoxville, or for shipments from the West through Fort Worth, Dallas and Chicago.

For point-to-point rates and schedules, call your nearest Delta office in any of the 31 cities shown on this map. Or write to Air Freight Supervisor, Delta Air Lines, Atlanta, Ga.



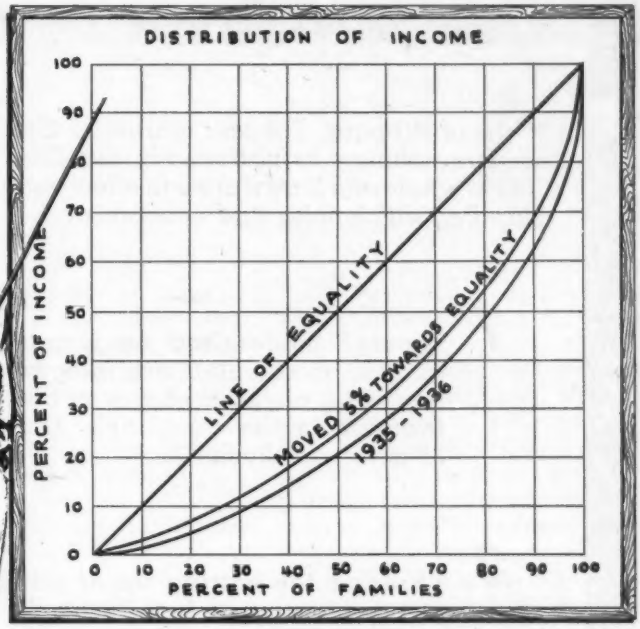
Delta Air Freight Takes a Load Off Your Mind

General Offices: **Atlanta, Ga.**

Delta AIR LINES

A TOOL FOR MARKET ANALYSIS

By ALFRED W. McQUILLAN, JR.
Economist



The old relationship between markets and buyers has been upset by the war . . . In this article, Mr. McQuillan discusses a useful technique for relating current statistics to the problem of marketing.

SINCE the end of the war business has boomed. Corporation profits have been higher than ever in history and prices have risen to unprecedented heights. In spite of the many strikes and work stoppages in the basic industries, many producing companies have been able to receive sufficient quantities of raw materials to exceed their peacetime production peaks. Up to the moment, generally speaking, the industrial output has found a ready market with little sales resistance to prices which have afforded sizable profits. However, inventories in many lines are getting back to normal and competition within these lines is being restored. Competition is the most effective balance wheel in the economy and price adjustments should be expected in all fields where competition has returned to any considerable extent.

The era of easy selling is coming to an end. Sales managers must take into account the changed characteristics of their markets if they are to cope effectively with the competitive positions in which they are finding themselves. Few sales managers, however, are statisticians and even fewer are economists. Most of them were reared in the marketing conditions of the twenties, the thirties or the more recent war time markets. They cannot be blamed for not understanding the changed conditions which exist in the distorted markets of today. These conditions are the result of a phenomenon which is not immediately obvious.

The few companies which employ staff economists to keep them informed of these changing conditions are molding their policies to fit the existing market conditions. Other companies are attempting to interpret their positions in these changed markets through the use of outside economic services and find that they are woefully lacking in the kinds of simplified economic data which their staffs, untrained in economic analysis, can use effectively.

One of the impacts of the war on our economy was the change which took place between income groups in the United States. The whole lower level of the income scale, as we knew it before the war, has moved up into higher income brackets. Even after tax withdrawals and the higher cost of living these pre-war, so called underprivileged groups have far more real dollars to spend today than before the war.

During the war most people earned more money than they had ever earned before and there were fewer things available in the markets on which to spend their in-

(*Continued on Page* 76)

Streamlined

Plans of Hibbard, Spencer, Bartlett & Co. for streamlining its nationwide distribution of wholesale hardware will effect outstanding efficiencies and economies . . .

1. *Through modernized equipment and the coordination and integration of all physical phases of distribution in the company's new 20-acre warehouse . . .*

2. *Through the setting up of efficiency patterns such as Hibbard's model "dealer store" to enable the company's 900 retail dealers to increase profits and meet dime store and mail order house competition . . .*

3. *Through manufacturer cooperation affecting packaging, packing, handling and shipping methods made possible through Hibbard's plan for "concentrated purchasing."*

Hibbard's 20-acre warehouse is designed for horizontal, rather than vertical, storage. It will be situated on a 35-acre plot. It will be 1160 ft. long by 737 ft. wide and will require more than 800,000 sq. ft. of concrete flooring. If used in a 20-ft. roadway, this flooring would be enough for eight miles. Roofing required will equal that of 4,000 houses. An assembly hall will seat 1,000 persons and a cafeteria will feed 500 at one time.

MORE than two years ago our company decided to make some basic warehousing and handling changes in our nation-wide operations as a wholesale distributor of hardware. We decided that we could achieve important operating advantages by moving from our fairly modern 14-story building near the business center of Chicago, out about 12 miles to a more roomy suburban location just outside the Chicago city limits. At this new location we have acquired 35 acres of land and are now in the midst of constructing a giant one-story warehouse and distribution plant which will cover nearly 20 acres of ground, and which we plan shall embody all of the most modern handling and warehousing facilities which we consider immediately practicable. Through this new construction we expect to: 1. Cut handling costs. 2. Speed customer shipments. 3. Reduce general operating overhead. 4. Create more favorable employee working conditions. 5. Achieve added distribution advantages.

We of course gave careful advance consideration to all company operating needs, before deciding on this change. The Chicago building from which we shall move was planned and erected about 20 years ago for our own exclusive use, and it isn't old as warehouses go. In fact, it is one of the most recently-built among the existing large multi-story warehouses and I believe is still considered a fairly modern building of its type. However, chiefly because it is a multi-story building, and also because of its location in an area of increasing traffic congestion, certain dis-

Distribution

By C. J. WHIPPLE

Chairman; Hibbard, Spencer, Bartlett & Co.

advantages had become apparent from the viewpoint of our own operations.

New efficiencies which have become possible in the horizontal handling of materials were emphasized to us during the recent war period, especially in some of the large warehouses taken over and operated by the army and navy. This is not to say that I believe that any government managed operation can exceed the efficiency of a private enterprise under equal conditions. But during the war period, when the pressing national defense problem was speed in volume handling of materials without especial regard to costs, the government warehousing operations were favored by special experimental advantages in the development and testing of new horizontal handling methods. This included more concentrated use of fork lifts, power tractors and trailers, drag-line conveyors, pallet handling and stacking, and tests of floor classifications in mass warehousing of merchandise. From our own company viewpoint, these wartime tests in improved handling methods could be observed rather impartially, since, beginning in the summer of 1942, the Government had gradually taken over our entire 14-story building. And for about three years we operated as best we could in two other warehouses, with our general office transferred to a third location.

Previously we had fully realized some of the disadvantages in a multi-story type of building, for warehousing and shipping the vast number of items essential to our jobber operations with some 15,000 local hardware retailers of the nation. One of the most obvious of the operating disadvantages is the required use of elevators. Operations in our own 14-story building have required the use of eight passenger and freight elevators. This recently has represented an annual expense of about 20 thousand dollars for personnel alone and additional substantial costs for elevator power and maintenance. Other obvious elevator costs are losses of time of personnel in waiting for elevators.

Another disadvantage is lack of space flexibility in a multi-story building. This is noticeable every time there is need to care for an extra large in-shipment. Assuming an emergency need for 10,000 sq. ft. of space, it usually would require the use of surplus storage space on several different floors. And the only possible alternative would be the costly procedure of making all of the needed space available on a single floor, through transfer of goods to several other floors.

An ever present "head-ache" in the use of our multi-story building has been the time required in the assembly of shipping orders. It has been our policy to have prepared enough extra copies of each shipping order so there will be an individual copy for each of the floors from which goods must be assembled. This of course has required extra office work and careful shipment assembly practices. The procedure also has required costly training periods for our floor assembly clerks, to insure their familiarity with the stock; and any floor-to-floor changes in the stock naturally hampers our order assembly procedure.

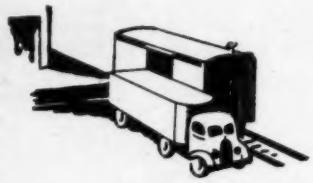
We also realize that there has been considerable loss in floor space in our multi-story warehouse, as compared with possibilities in a single-floor warehouse. We estimate that about 12 percent of the floor area of our 14-story warehouse is taken up by the elevators, stairways and walls; and considerable additional floor space is required for the supporting columns which extend through all floors. Each floor column takes an average of about two sq. ft. These columns divide the floor into unit bays which average 20 x 20 ft., or a total of 400 sq. ft. In contrast, all roof-supporting columns in the new one-story building will be 8 x 8 in. "I" beams. Thus, each column will require less than one-fourth as much floor space; and the columns will be farther apart, to provide bays 25 x 40 ft., or a total of 1,000 sq. ft.

As suggested, another advantage from our new location will be relief from the increasing street traffic congestion near the business center of Chicago. This congestion has especially interfered with our trucking pickup and delivery service, and also with the coming and going of our employees and office visitors. As to employees, even though our old building is considered "centrally located" in Chicago, it requires an average of an hour and 15 minutes for them to get to work in the morning and an equal amount of evening travel time.

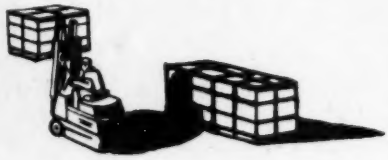
In choosing a location for our new warehouse, we of course gave careful consideration to transportation facilities. The location is just outside the Chicago city limits to the north and somewhat west;

HIBBARD'S 20-ACRE WAREHOUSE

In Hibbard's new warehouse all of the physical phases involved in the company's nationwide distribution of wholesale hardware will be streamlined through revolutionary departures from traditional practice.



Modernization, standardization and simplification at points where transportation connects with other distributive activities, will speed customer deliveries and incoming and outgoing shipments.



Modern equipment, coordinated techniques and the use of horizontal, rather than vertical storage, will effect big economies in the cost of handling goods. Special handling techniques will be employed.

Through manufacturer cooperation, a large percentage of all merchandise will be prepackaged and palletized. Packing room practices will be based on the use of efficient conveyo. systems.

Shipping, handling and storage methods are calculated to reduce insurance costs to a minimum and to make radical reductions in general overhead. The Hibbard plan will enable the company's retail dealers to benefit.

Hibbard's plan for "concentrated purchasing" makes manufacturer cooperation possible. Marketing plans provide for the setting up of efficiency patterns for retail dealers to increase sales and meet chain competition.

at the south-west corner of the city of Evanston. Nearly 20 acres will be covered by the building, all of which will be one-story with the exception of the two-story front office section. The remainder of our 35 acres will be landscaped and made available for automobile parking, employee recreational use, and for possible future building expansion. The site is served by a near-by Chicago street car line; and by an elevated electric line which connects with the Chicago electric elevated system and several bus lines. The street car line is along Western Ave., a much-used motor trucking route into and through Chicago. The site also is served by the Chicago & Northwestern Railroad, and there will be three spur tracks into our new building.

The building will be 1160 ft. long by 737 ft. wide. Thus, there will be over 800,000 sq. ft. of ground floor space, covering nearly 20 acres. The concrete flooring will rest solidly on the ground and will be topped with asphalt. This immense concrete floor, if lengthened into a 20-ft. roadway, would provide nearly 8 miles of paved highway. The roof drainage for the building will be equivalent to that of 4,000 ordinary city homes and will require a four-foot drain pipe.

Within the warehousing section of the building there will be no interior walls, with the exception of one small corner room for flammable products. The warehousing section will be divided into longitudinal units by the two parallel spurs of rail track, each 500 ft. in length and one shorter track for out shipping, all entirely under cover. This will provide sheltered loading and unloading space for 30 rail cars, which the company can switch about and spot as desired. Likewise, there will be under-cover docks for the unloading of 15 motor trucks and the loading of 20. There will be one-way passage only for the motor trucks, across the rear end of the building, entering at an automatically-operating double door on one side and exiting through an opposite automatic double door.

(*Continued on Page* 50)

Training new employes was neglected during the war, but the day has come when the initial training given a new employe will play an important part in company activities.

By J. J. MUNDY

M. O'Neil Co.
Akron, Ohio

BECAUSE of the type of operation in our receiving and marking, we have found it necessary to extend our program of "on the job training" to our entire operation over a course of 10 days to two weeks before starting a new employe on any one specific type of work. We have found that an individual who has some knowledge of the work being done above as well as below him does not become stagnant or frozen on one job.

A new employe should be properly taught the fundamentals of the work he is to do. In our organization the individual is given first a complete physical examination by the store physician in our hospital. This is done to insure his fitness for any type work he may be asked to do in the department he is hired for. He is then taken to our training department where our training supervisor explains the benefits he will derive and the opportunities he will be afforded by becoming a member of our organization. Also, group hospitalization and insurance are explained at this time.

He is then turned over to the department manager. In receiving and marking this happens to be me. The individual is taken by my assistant or our training manager, who is thoroughly familiar with our operation, to the receiving dock where he is introduced to the receiving clerk. He is shown the receiving of a shipment direct from the tailgate of a truck. We explain in full the vital points that have to do with the specific job we intend to start the individual on. We then follow the shipment all the way through with the new employe, and explain each operation in detail from the time it leaves the tailgate until it hits the selling floor. To complete the outline of our operation, he is given a departmental sheet that lists the departments in numerical order and the type of merchandise they handle, also the floor to which their freight should be distributed. He is asked to study it thoroughly so that he will be acquainted with the various departments.

This is part of a paper read before the Louisville Clinic of the National Retail Dry Goods Assn., Traffic Group.

The following morning the individual is put to work on our receiving dock under the supervision of our receiving clerk. He works on the job for a two-day period to learn not only the receiving operation more thoroughly but also the proper handling of freight. He is then used for a day as a helper on our freight elevator where he is taught the distribution of freight. We receive, check and write-up our express and parcel post in the sixth floor receiving room adjacent to our marking department and he helps this receiving clerk for two days, helping to distribute merchandise to the various sections and learning the fundamentals of checking in merchandise so that he can visualize the importance of properly carrying out the work he has been doing for the past week. On this job he is shown how to fill out an OS&D form for concealed damage overage or shortage and how to watch for case number, order department number or other identifying marks to see that the shipment goes to the right depart-

(*Concluded on Page* 49)

5¢ A TON . . .

The salt water loading of packaged cargo currently costs from $2.80 to $10 per ton and loading for fresh water transportation, $3.70 . . . This article discusses a proposed method of mechanized loading through side ports at the rate of 2000 tons per hour and at a cost of only FIVE CENTS per ton.

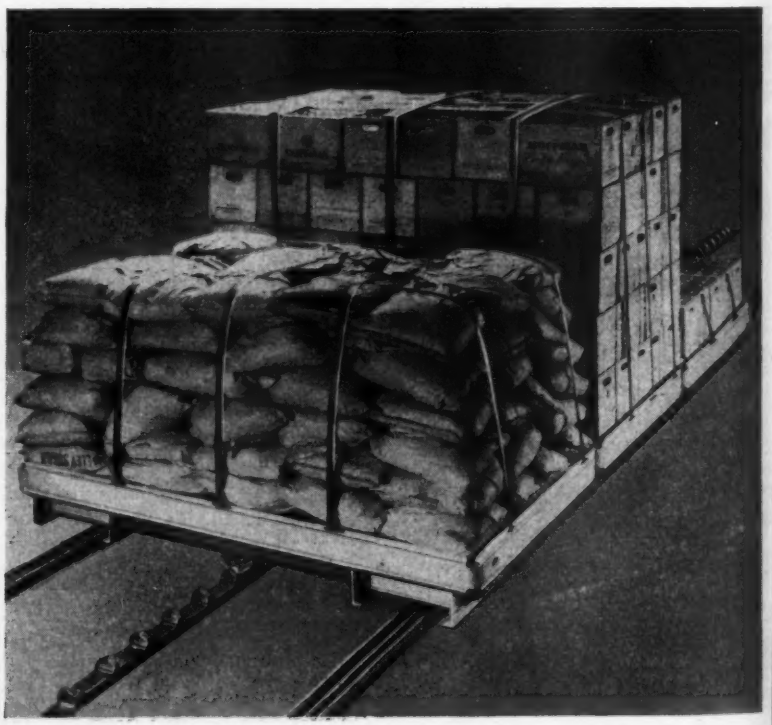
FOR years it has been said that waterway transportation, whether inland or at sea, is the cheapest way to move goods per ton mile. But for some reason the only goods moving by water today between cities in the United States are bulk commodities such as coal, ore, wheat and the like. Year in and year out the movement of millions of tons of such materials proves and reproves our belief in the cheapness of water transportation, once the goods are loaded aboard the vessel —but there is the catch!

Bulk commodities are today handled by mechanical loading machines requiring an initial investment of money for machinery and ships of no small magnitude, but results pay off in economy and make recovery of the investment and payment of profits a sure process.

The lesson of the bulk commodity water carriers should be plain to those mariners who mournfully watch the passing flow of package cargo by rail and truck. Package cargo, if it is to be carried by ships today (and certainly it should be, between cities having ports), must be handled mechanically at a cost of less than fifty cents a ton.

Today's salt water conventional style loading methods cost anywhere from $2.80 to $10.00 per ton at each end of a trip. On the fresh water routes it runs around $3.70 per ton and is still going up. It is no surprise that the two seaboards and the Lakes today are almost devoid of intra-national package cargo traffic. An area such as New

Three Pallets with 15 Tons Load on Carriage



TO HANDLE PACKAGED CARGO

By CHARLES E. ELLIS

Consulting Engineer

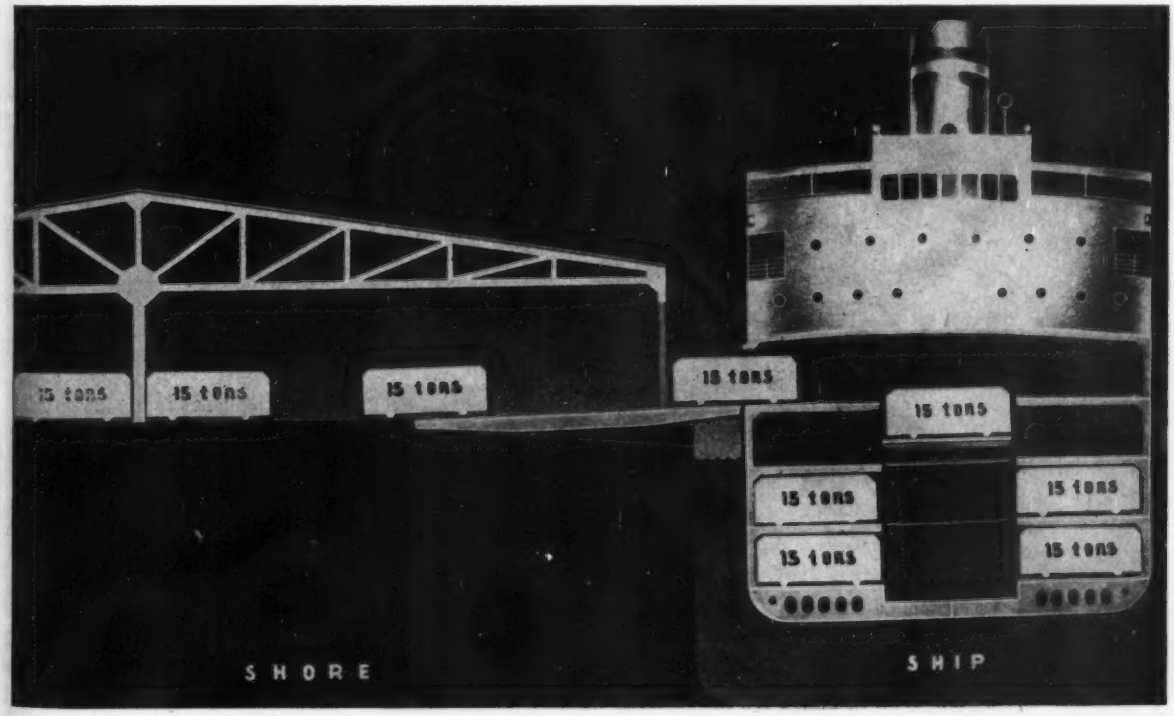
England is forced to rely entirely on an increasingly expensive and unbalanced rail and truck movement for its entire food and raw material supply. All signs indicate mechanized loading of package cargo as the only method cheap enough to put the ships back in service again; we need them in service for the sake of the ultimate consumer, who can save pennies on his grapefruit and his Wheaties, and for military reasons too.

Several years ago an industrialist who, in one person, combined the experience of a shipper, an operator of ships, and a warehouseman, gathered together a group of engineers and developed and produced a mechanical loading method for ships and barges called the "Ship and Shore Cargo Loading System," which can load a ship at a cost as low as five cents a ton, at a rate of 2000 tons per hour, and which is now available for use. The system can be adapted to handle any type of unit load, be it pallet, container, or a trailer-truck body minus the rubber.

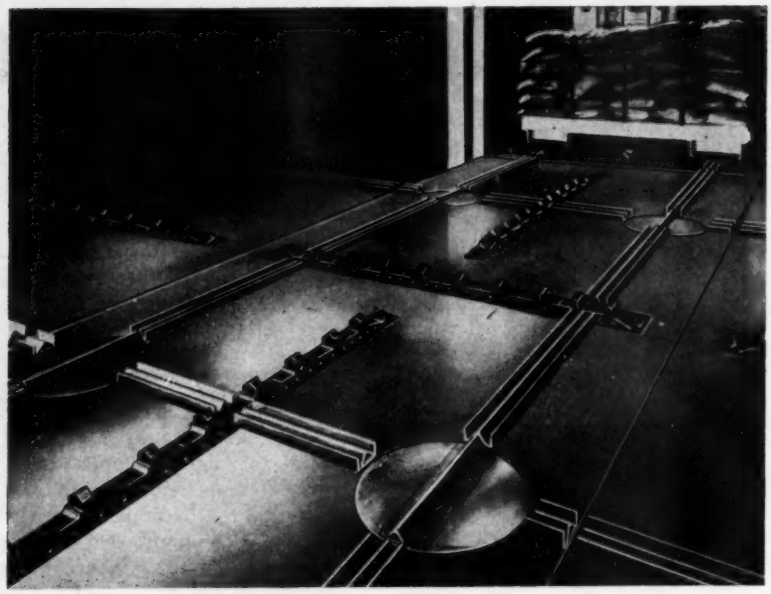
The basic unit of the system is an eight inch high miniature flat car of most inexpensive but carefully engineered construction, on which is placed the load or loads to be moved aboard the ship or barge. Movement into the ship occurs over small rails and is powered by tractor chains running between the rails and engaging the cars from below. No locomotive or tractors are used for this portion of the movement, which insures a continuous uni-directional flow of cargo out of the pier shed and into the ship through its open sideports. Once on the ship, push-button elevators distribute the loaded cars to the proper deck levels. There they move sidewise over rails in the ship's decks to stowage position, where they are locked down for the voyage.

There is much promotional activity and planning today for ships to carry complete truck-trailers from city to city over water, and it looks as though such an operation might show a profit, especially where several state boundaries are by-passed, or where over-the-road load is limited beyond city boundaries. We feel that ships designed for this purpose will be inefficient in the utilization of the ship's cubic capacity and that they will tie up thousands of dollars worth of valuable rolling stock during each voyage, so that

Carriages Move Along Rails by Endless Chain, up to the Gangplank and on to the Ship's Elevator

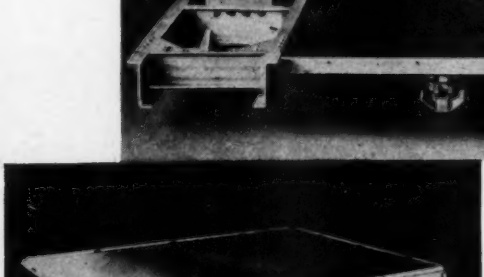


HOW THE SHIP AND SHORE SYSTEM WORKS



1. Palletized Loads Move on Ship by Ingenious Chain System.

2. Carriage can hold 15 tons.



3. Pallet carries 10,000 lbs.

4. Carriage holds three pallets.

such vessels can easily be made obsolete by ships designed to carry unit loads without over-road running gear.

The Ship and Shore System applied to a given vessel will permit the carrying of about 40 percent more net tonnage of freight per voyage than the trailer carrier ship, thus making the trailer carrier appear to be a comparatively high cost operation. The reasons for this are plain to see: the loss of cubic under the floor of the trailer is a large percentage of the total available; the excessive clearances which must be allowed to permit spotting of the often lopsided trailer load is a waste; and the geometry of the ship's shell (C1, C2, C3, C4, USMC types) makes it impossible to get as much tonnage aboard as with the Ship and Shore, whose cars are adapted to move endwise as well as sidewise. In a few words, we look on the trailer-carrying ship as a step along the way, temporarily profitable, but vulnerable to Ship and Shore competition.

The Ship and Shore System prefers the use of very large pallets instead of containers, because a container when empty occupies the same space as when loaded, which is a disadvantage in an unbalanced movement. Empty pallets, however, can be stacked in little space. Collapsible containers reduce this difference but have the weakness of multiple parts, high cost, and do not seem to work out in practice in usefully large sizes.

The Ship and Shore aluminum pallet, which measures 7 ft. 6 in. x 5 ft. 6 in. and weighs 175 lb., is the maximum size which will fit into a box car and a trailer truck. It has a load capacity of about five tons, or three hundred cubic ft. For maximum efficiency, goods can be palletized at their source, the factory, and then handled through common carriers, rail or truck, with great dispatch before and after reaching the waterfront. Using the super pallet, it is possible to load a U. S. type freight car in 30 min. with from 35 to 45 tons of freight, a semi-trailer truck in 15 min. with 15 or 20 tons.

To attain maximum speed and economy, the system must be used

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SYSTEM IN TRAFFIC MANAGEMENT

Efficient traffic management should formulate, in cooperation with other functional departments, a systematized overall plan for control of the many related problems involved in the physical distribution of a company's products.

By T. W. BRANDES

Traffic Manager
Rexall Drug Co.

IN today's complex and rapidly changing transportation picture traffic management contributes its share by being eternally prepared to provide the fastest and most economical service. The traffic manager, in his efforts to secure the fastest, cheapest and best transportation, is confronted with a number of primary problems. These include cost, type of carrier best suited to his individual needs, routing, classification description, carload, truckload or less packaging, crating or wrapping.

Efficient traffic management should cooperatively provide the necessary facts and figures to other departments to provide larger marketing areas, sources of supply, and greater purchasing economy.

Traffic research and analysis is a requisite, both from a service and cost standpoint, in the projection of branch sales and warehouse operations. This, of course, definitely requires the complete cooperation of distribution, production, sales, purchasing and traffic.

Traffic management must be responsible for and supervise the proper functioning of all phases and aspects of transportation with the objective of expediting the movement of merchandise and the avoidance of back-hauling and cross-hauling. In the accomplishment of this end, it must collaborate fully with all other departments of the company in matters of transportation, procedure and policy. The complete and detailed analysis of the distribution of company products is an important and vital function of traffic management.

The purchasing department looks to the traffic department for assistance in determining the availability of markets. It's traf-

After an order is filled in the warehouse (Fig. 1), it is loaded onto a platform (Fig. 2) and transported by means of a hydraulic lift truck (Fig. 3) to dispatching point.

A rate and route card index system, when efficiently serviced, not only helps control distribution costs by making needed shipping information immediately available, but facilitates the auditing of freight bills by eliminating the need for constant reference to tariff schedules and routing guides.

PHOENIX, ARIZ

COMMODITY	CLFN	CLASS RATE LCL	2M	5M	10M	COMMODITY RATE LCL	500	2M	5M	10M
MEDICINE	3	106		98	92					72
TOILET PREP.	3	106		98	92					72
ABSORBENT COTTON	1	134		130	122					72
ADVERT. MATTER NOT	2	122		114	108					
BATT. DRY-SPENT	3	106		98	92					
CANDY	4	92		82	78					
COCOA	4	92		82	78					55
CONFECT. PASTE	4	92		82	78					
COFFEE	4	92		82	78					55
CRUSHED FRUIT	4	92		82	78			85	75	48
DISINFECTANT	3	122		114	108					

Forwarders Am. Vous. Dely. 1st a.m.

PHOENIX, ARIZ

COMMODITY	CLFN	RAIL LCL	2M	5M	10M	TRUCK LCL	2M	5M	10M
MEDICINE	3	121		106	97	121		108	97
TOILET PREP.	3	121		106	97	121		108	97
ABSORBENT COTTON	1	154		140	127	154		140	127
ADVERT. MATTER NOT	2	137		124	113	137		124	113
BATT. DRY-SPENT	3	121		108	97	121		108	97
CANDY	4	106		92	83	106		92	83
COCOA	4	106		92	83	106		92	83
CONFECT. PASTE	4	106		92	83	106		92	83
COFFEE	4	106		92	83	106		92	83
CRUSHED FRUIT	4	106		92	83	106		92	83
DISINFECTANT	3	121		92	83	121		108	97

Forwarders Lines; Shipped Frt. Southwestern Mails and Express

1st a.m.

fic's job to determine whether the transportation cost and available service will meet manufacturing and customer requirements. Economy, of course, takes priority in shipments to warehouses but, on the other hand, service to our customers receives first consideration.

In the interest of economy and efficiency, shipments to warehouses should be in carload lots whenever possible. This is especially true of transcontinental and long haul movements. In shorter hauls, shipments forwarded in truck loads are delivered sooner and at the same cost because trucks can go direct from the shipping point to the destination. Carload traffic, on the other hand, has to be switched several times before it is actually placed in the train, destination bound. At the present time care must be taken in carload shipments to ensure that they are of sufficient quantity to properly load the cars in compliance with the provision of ODT Rule 18-A.

On less carload (l.c.l.) and less truckload (l.t.l.) shipments often are made in pool cars because this shipping method results in the cheapest and fastest transportation. Pool car shipments have the advantage of carload rates and dispatch. However, the cost to individual shippers is more than the carload rate but considerably lower than the l.c.l. or l.t.l. rates.

Pool cars are operated by consolidators and non-profit associations comprised of firms handling like or analogous commodities, or merchandise ordinarily handled in several different rate brackets by the forwarders. Pool car handling differs from forwarder or carloading company operation in that shipments commonly are confined to certain groups of shippers operating between certain cities or territories. Rates, or rather costs of transportation, are not subject to the Interstate Commerce Com. rules and regulations, and they do not have competitive or general overhead expenses. On the other hand, forwarders, who are common carriers, are subject to the strict regulations prescribed by the transportation act and compelled to accept all freight offered by all individuals and firms.

A thorough check of shipping costs will disclose that under some conditions trucks can handle l.t.l. freight at less expense and with greater speed than carloading companies. This is particularly true in the case of truck shipments between the Chicago-St. Louis territory and the West Coast.

Coastwise and intercoastal shipping must be considered from a cost and service standpoint. This mode of transportation affords lower rates but the charges from and to ports, plus wharfage, truck tax, or car loading and unloading must be added. Parcel Post for shipments weighing less than 100 lb. often is the cheapest method of transportation and its service is comparable to express. When making emergency shipments by air, one should consider the rates and services offered by the common and contract carriers for air express and air cargo.

When shipping large but lightweight articles, such as display counters and cases, the cost of crating and the distance to be traveled are important factors. The cost of crating and uncrating is fixed, whereas the cost of transportation varies with run. Sometimes it is cheaper to ship by van than by truck or rail because van shipments do not require wrapping or crating.

The descriptions of articles to be shipped must be carefully scrutinized by traffic management to insure that they are in the classification which provides lowest rates. The correct routing of shipments is very important. Both rail and truck rates are frequently influenced when certain junctions or carriers are specified.

Constant vigilance must be maintained at all times in the matter of rate reduction applications filed by competing industries through the carriers or in formal complaint to the ICC. This must be done if your own company is to avoid paying excess charges and to maintain distribution costs at a competitive level. When investigation establishes the fact that competitors in other territories are enjoying greater transportation benefits for comparative or greater service on analogous commodities, action should be started through the carriers for a reduction of rates or minimum weights.

Efforts to reduce loss and damage to an absolute minimum must be maintained constantly. Research must be conducted to provide containers that will afford necessary protection in handling and transit without adding unduly to weight. The cost of transporting the packaging is on the same rate basis as the contents.

Let us not overlook the fact that although carriers are fair in their adjustment of loss and damage to shipments, your company nevertheless suffers a loss. This loss is occasioned by cost of preparing and presenting claims, the wasted handling effort, and the loss of customer good will.

Records should be kept on all loss and damage experience with the various carriers in order to correct causes and to determine which of the transportation agencies are unduly careless in handling merchandise. It is sometimes desirable to use competing carriers in order to see if loss and damage can be materially reduced.

Newly developed methods of packing and crating should be watched since they frequently offer suggestions to management for safer and lower cost containers and methods in the shipping room. The shipping clerk and his aides must be educated in the proper sealing and marking of packages. The markings on l.c.l. or l.t.l. freight packages is extremely important since incorrect addresses mean a lost shipment, wasted effort and expense on the part of shipper, customer and carrier. Carriers dispatch freight according to the markings. Under the law, marking of the package takes precedence over the address shown on the bill of lading. When shipment is reforwarded from an erroneous destination to proper destination, the shipper must pay local rates to and from the wrong destination if that point was shown on the container.

Every effort should be made to see that freight charges are paid on the proper weight basis. Where the procedure is not too costly,

(*Concluded on Page* 88)

Highway "Clippers" clip travel time to and from cargo airports

ON U. S. highways leading to skyways you'll see Highway "Clippers" and "Freightmasters" rolling with big payloads of air freight. Aviation companies have discovered that the only way to make the most of flying speed is to save time getting freight to and from airports. Highway Trailers are proving their value.

For 30 years Highway Trailer engineers have been meeting motor transport problems as they came along. Today's increased demand for efficiency and easy handling of bigger loads finds a ready answer in Highway Trailers. More than ever, it is an advantage that Highway Trailers are *manufactured*, rather than being merely assembled, in Highway's modern factories—complete with foundry, forge and machine shops.

Whatever your hauling problem, it will pay you to write for the facts. Highway "Clippers" and "Freightmasters," the Warehouseman's Van, Tank, Live Stock and Grain Trailers, each represents the finest in its class. You will understand why it pays to let your next trailers be Highways.

See the New
HIGHWAY WAREHOUSEMAN'S VAN

For extra cubage, for easy handling, for rugged construction, for long years of low-cost service —you'll find extra value in the new Highway Warehouseman's Van. Write for complete facts!

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CHICAGO, ILL.—Hyster Company
CINCINNATI, O.—Oral T. Carter & Associates
CLEVELAND, O.—Morrison Company
DALLAS, TEX.—C. H. Collier Company
DENVER, COLO.—Paul Fitzgerald
DETROIT, MICH.—Bentley & Hyde
HALIFAX, NOVA SCOTIA
A. R. Williams Machy. Co., Ltd.
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INDIANAPOLIS, IND.—Central Rubber & Supply Co.
JACKSONVILLE, FLA.—L. S. Teague Equipment Co.
KANSAS CITY, MO.
Industrial Power Equipment Co.
LOS ANGELES, CALIF.—Hyster Company
LOUISVILLE, KY.—Embry Brothers, Inc.
MILWAUKEE, WIS.—Hyster Company
MINNEAPOLIS, MINN.—W. S. Nott Company
MONTREAL, P. Q.—A. R. Williams Machy. Co., Ltd.
NEW ORLEANS, LA.—Hyster Company of Louisiana, Inc.
NEW ROCHELLE, N. Y.—Eastern Industrial Sales Co.
OTTAWA, ONT.—A. R. Williams Machy. Co., Ltd.
PHOENIX, ARIZ.—Equipment Sales Company
PITTSBURGH, PA.—Equipco Sales Company
PORTLAND, ORE.—Hyster Sales Company
ST. JOHNS, N. F.—City Service Company, Ltd.
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SALT LAKE CITY, UTAH—Arnold Machinery Company
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SEATTLE, WASH.—Hyster Company
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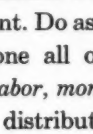
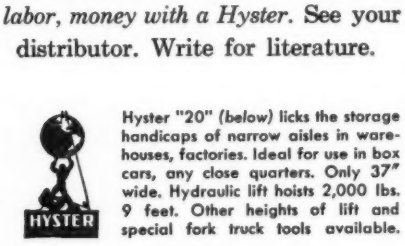
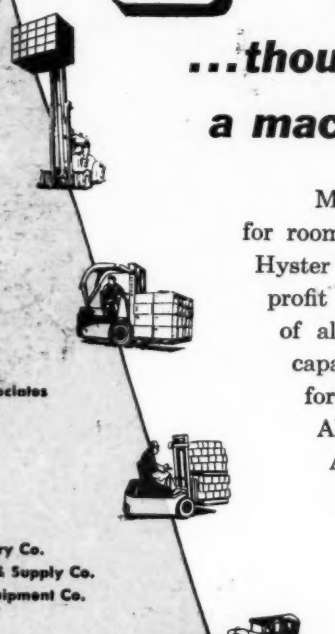
Materials handling costs too high? Crowded for room? Space at a premium? You can use a Hyster fork type lift truck or Karry Krane with profit to hoist, move, tier heavy, bulky goods of all kinds. Your choice of 7 models with capacities ranging from the small 2,000 lb. fork truck to the 30,000 lb. straddle truck. All on pneumatic tires. All gasoline-powered. All manufactured to the highest engineering and performance standards. All sold and serviced by Hyster distributors — specialists in materials handling equipment. Do as every type of industry has done all over the world. *Save time, labor, money with a Hyster.* See your distributor. Write for literature.



Hyster "20" *(below)* licks the storage handicaps of narrow aisles in warehouses, factories. Ideal for use in box cars, any close quarters. Only 37" wide. Hydraulic lift hoists 2,000 lbs. 9 feet. Other heights of lift and special fork truck tools available.





HYSTER COMPANY
2940 N. E. Clackamas, Portland 8, Oregon
1840 North Adams St., Peoria 1, Illinois
1640 Meyers Street, Danville, Illinois

THE GEARHART TAX BILL

By ARNOLD KRUCKMAN
Washington Correspondent

Congressman Bertrand W. Gearhart

Congress has adjourned . . . leaving 300 last-minute bills on the President's desk.

Gearhart of California proposes a 10 percent excise at the manufacturer's level and reduction of retail excises and income taxes . . . Congress expects a special session over conditions in Europe.

THE bill H. R. 4352, introduced by Congressman Bertrand W. Gearhart of California, if enacted would impose an excise tax of 10 per cent upon all manufacturers, and would repeal virtually all excise taxes imposed during the war upon retailers. The bill is taken very seriously in the Capital because Rep. Gearhart is a leading Republican, one of the genuine wheelhorses of the party and one of the most prominent members of the House Ways and Means Committee. He is the western member of the Republican Policy Committee and the senior and dominant member of Congress from California. He is popularly known as "Bud" Gearhart, is regarded as one of the foremost authorities on Constitutional law in Congress, and was one of the founders of the American Legion. He was the Congressman to introduce the bill which marked federal recognition of November 11 as Armistice Day. He is the direct descendant of Capt. Jacob Gearhart who assembled the small boats in which George Washington made his immortal crossing of the Delaware.

The Gearhart bill would place an excise tax on all fully-processed goods at the manufacturer's level. There would be no tax on food, but present excises on tobacco, distilled spirits, wines, beer, and electrical energy would remain in effect. The gasoline tax would be increased from 1.5c. per gallon to 2c.; the levy on importers of tea would be 5c. per lb., of coffee 2c. per lb. The new law would give the federal government 47.9 percent of its revenue from income taxes, and 52.1 percent from excises, estates, gifts, customs and miscellaneous sources. The capital gains tax would be reduced from 25 to 20 percent. Home owners would be allowed a tax reduction for depreciation of their dwellings. Present income taxes would be lowered from the existing range of 19 to 86.5 percent down to 14 to 50 percent. Corporate income taxes would be lowered from 32.7 to 22.4 percent. Gearhart points out that at present the government raises over 80 percent of its total revenues by tax levies on corporate and personal sources, this 80 percent being exacted from 40 percent of those sharing in our national income. Under existing law more than $105 billions of the national income escape all taxes through exemptions, exclusions, deductions and evasions. The fight over taxation will be one of the noisiest issues of debate in the next Congress. Mail arriving here indicates that the country at large blames the Congress, rather than the President, for the debacle in the recent tax fight. Senator Taft and other leaders of the Republican majority apparently have decided that the most popular method of reducing taxes is to remove excises at the retail level. The retail excise taxes at all levels and for anything have been exasperating to the voters beyond the usual manifestations of irritation.

Gearhart points out that his bill would reduce personal income taxes 9.7 billion dollars and raise 5.5 billion dollars new revenues by the 10 percent manufacturer's excise. At the same time, it would drop 19 million low-income persons from the federal tax rolls by increased exemptions.

"From my studies and those of others who specialize in fiscal mat-

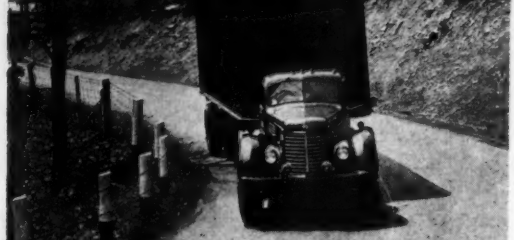
(*Continued on Page* 80)

A LITTLE MORE

Motor carriers' accessorial charges vary greatly with respect to area, commodity class, and individual carrier regulations . . . Six of these charges are analyzed, and recommendations made for their standardization.

By FRANK E. ASHER, T.M.
Schupper Motor Lines, Inc.

1. REDELIVERY. These charges may be assessed at fixed rates ranging from 13c. per 100 lb. to much higher rates, based on complicated computations affecting commodity classification. Charges also vary according to the commodity shipped and place of delivery.



2. STORAGE. Accessorial charges for storage are closely related to redelivery charges. While there is considerable uniformity in respect to "free time" there is need for more standardization in respect to charges for truckloads and less-than-truckload lots.

3. INSIDE DELIVERY. This is a frequently requested service, but so far the rate makers have failed to devise a simple, standardized terminology for this necessary evil. The line of demarcation between the shippers' rights and the carriers' duties is vague.

A FIRM in New York is to receive three identical shipments, each weighing 3,000 lb., from Baltimore, Boston, and Charleston, S. C. Because of unforeseen labor difficulties, the plant is shut down on the day of delivery and the shipments are refused and returned to the carrier's terminal in New York. A few days later, the labor difficulties are disposed of and the three shipments are ordered to be redelivered at the plant.

The traffic manager of the company is well aware that he will have to pay for the extra service he receives and he is prepared to pay the penalty for the inability of his firm to accept the freight when it was first offered for delivery. However he is slightly startled, to say the least, when he surveys the various bills rendered and finds the following facts: the redelivery of the Baltimore shipment and terminal handling cost $8.70, the Charleston shipment, $5.70, the shipment from Boston, $18.00. These latter charges are subject to further amendment involving specific location of the consignee or the carrier's terminal in the New York commercial zone, the applicable class of the commodity, and individual exceptions and applications of the carriers performing the service. If this unfortunate shipper were to have three redeliveries of three identical shipments the following day from Chicago, Minneapolis, and Denver, he would again be charged with three different amounts, from $3.90 up. Thus, for the identical services of redelivering an interstate shipment of identical weight and class, within the same community and within the same zone of this community, charges vary from $3.90 to $18.00, not taking

UNIFORMITY, PLEASE...

into consideration wider variations caused by individual applications. Can anybody be surprised if this traffic manager turns away in disgust because of this extreme lack of uniformity, and if he decides to use in the future other modes of transportation which do not cause him and his accounting department a nightmare of incomprehensible charges?

This example was chosen at random. It may be stated at the outset that the same disorder is characteristic of all so called accessorial charges in motor transportation not only in the New York, but in every community where tariffs of various rate publishing bureaus apply. This example does not even take into consideration the tremendous number of carriers who publish their own tariffs, naming individuals rules and applications.

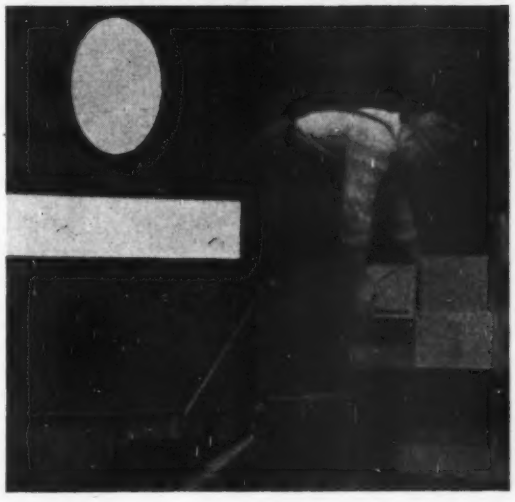
In order to make our case somewhat stronger let us compare these accessorial charges for the following territories: Middle Atlantic states, New England, the Eastern Central territory (roughly trunkline territory east and west of the Mississippi), the Central states territory, the Southern territory—and the Western trunkline and Pacific territory. For simplification we shall analyze charges to apply in New York, only and without regard to the multitude of individual exceptions and applications.

REDELIVERY. As outlined above, these charges may be assessed at a fixed rate from 13c. per hundred lb. to a complicated combination of double the local rates based upon proper classification of the commodity. Special terminal handling charges are sometimes added. Charges, varying according to the

(*Continued on Page* 70)

4. DEMURRAGE. Although the unnecessary detention of motor vehicles is costing the carriers many dollars, detention rules are being published in only three territories: New England, Middle Atlantic and South. But the charges are not uniform.

5. RECONSIGNMENT. In diversion and reconsignment the motor carriers are faced by more variable and complicated situation than the railroads, but no systematized approach to the problem of assessing charges has yet been developed. Confusion reigns.



6. PICK-UP AND DELIVERY. While attempts at uniformity have been made, the situation still leaves much to be desired. Rate differences are complicated by individual carriers' exceptions and special rules for pier deliveries and for handling some commodities.

MECHANIZED HANDLING

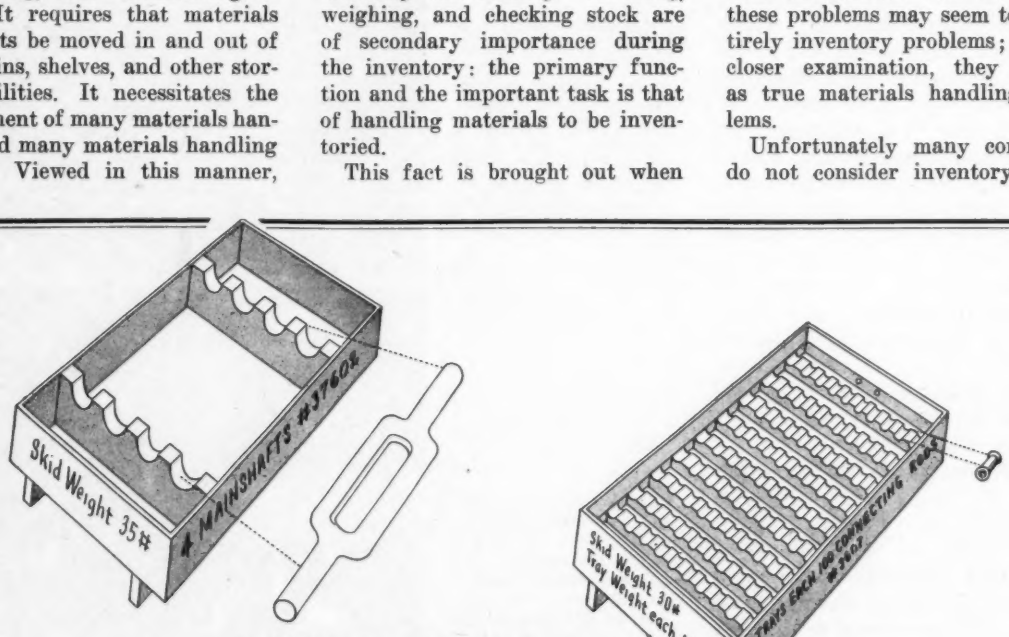
Inventory of heavy stock is a major materials handling job requiring the application of special techniques.

By BENJAMIN MELNITSKY
Special Correspondent

INVENTORY entails a tremendous amount of handling, moving, and transferring of stock. It requires that materials and parts be moved in and out of racks, bins, shelves, and other storage facilities. It necessitates the employment of many materials handlers and many materials handling devices. Viewed in this manner, inventory emerges in its true light as a *major, accelerated materials handling undertaking.* Counting, weighing, and checking stock are of secondary importance during the inventory: the primary function and the important task is that of handling materials to be inventoried.

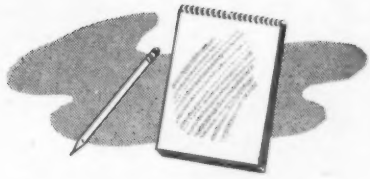
This fact is brought out when consideration is given to the problems that are characteristic of most inventories. On the surface these problems may seem to be entirely inventory problems; but, on closer examination, they emerge as true materials handling problems.

Unfortunately many companies do not consider inventory in its



Special skids designed for specific parts facilitates handling during inventory. One of the skids illustrated is intended for main shafts and the other for connecting rods. Note inclusion of skid weights.

DURING INVENTORY



true light. Inventories are planned poorly and executed badly because primary emphasis is placed on ways and means of checking and recording stock and secondary attention is given to materials handling. The results are just as bad as when the material flow from stores to processing rooms is considered not as a materials handling problem but as a stores problem.

Only when a problem is faced squarely can it be solved. Thus, the difficulties of inventory can be overcome only if they are considered in their true light, as materials handling problems and if to these problems are applied sound and tested materials handling techniques. Material types are handled differently; consequently they should be inventoried differently. The three categories for materials handling, and the three material groups that can be considered together are: 1. Bar stock which for purposes of this discussion includes all materials that are designated dimensionally such as bars, rods, tubes, square stock, flat stock, etc. 2. Castings, forgings, and similar semi-fabricated parts of varying dimensions and weights. 3. Finished parts that are machined or partly-machined or otherwise ready for use in finished units. For each of these three categories, different materials handling techniques are required, different devices are used, and different procedures are followed.

Inventory of bar stock can be exceedingly difficult unless full use is made of materials handling devices and techniques. If bars are handled manually out of racks, onto scales, and back in racks, the time involved is prohibitively great.

The first phase of the inventory problem for bar stock has to do with *identification*. Bars can be inventoried correctly only if identity of each bar is clearly apparent. Several means of indicating size and type of bar stock are used. Sometimes the size of bars is painted on the rack itself and the type of material is indicated by paint on ends of bars. Again the size and type are indicated on slips of paper placed in the holes of the tubing, or each bundle is identified by a tag which bears the size and type of material.

The next inventory phase for bar stock has to do with the *storage means*. Intelligent use of storage space bears a direct relationship to materials handling efficiency and, in turn, to inventory efficiency. Pigeon-hole racks are used widely. They make full use of stores space, they are economical; however, they should be used carefully with full regard given to materials handling devices employed during the inventory and at all other times. Storing large diameter bars or storing huge quantities of one size of material in such racks is wasteful of space and leads to inventory difficulties. Bars in pigeon-hole racks must be handled manually with but limited assistance from materials handling devices because bars are not available directly to hoists, cranes, or fork trucks. The best procedure to be followed is to store such material on dunnage. If bars are to be moved during the inventory or at any other time, a hoist, crane, or fork truck can be employed in moving bars from dunnage to scale or to wagons.

However, when bars are stored

(*Continued on Page* 84)

MAJOR INVENTORY PROBLEMS

THE PROBLEMS ..... and	THE SOLUTION
1. Too much time is spent on inventory.	**1. Full use should be made of all available materials handling equipment.**
2. Too many men are needed for the job . . . workers are withdrawn from other departments which suffer from this loss of manpower.	**2. Planned utilization of all available skids, platforms, pallets and containers.**
3. Inventory of heavy stock is an injury hazard.	**3. Application of materials handling techniques especially devised for the inventory.**
4. Parts are miscounted, wrong weights are recorded and other errors committed.	
5. Morale suffers because employees object to inventory work.	
6. Stores departments are tied up during inventory with the result that materials cannot move properly into production.	

DESIGN

for identification

INDUSTRIAL design can definitely establish the identity and service of a manufacturer, and through an integrated design program can "sell" this identity to the public. Possibly the most effective way of amplifying on this statement is to take a number of concrete examples where Van Doren, Nowland & Schladermundt has accomplished this in various diversified fields of design. In designing for these different fields the same basic approach was used. Before any actual designing was done the objectives of the program and the industry's peculiar problems were studied, and an outline of the factual information needed was decided upon.

Thorough field research for each problem was conducted to determine how the products were used, where they would be displayed and what is the story that should be gotten across to the consumer. A study was also made of competitive products to determine the good points and bad points in their design. It is an established fact that a "family" tie up is important for practically all types of manufacturers, except in cases where a product is sold under a different name to different price classes of consumers.

In the case of Chicago & Southern Airlines, VD N&S was commissioned to design the interiors of their new DC-4 planes and ticket offices, and to make a complete study of all related items. The president of the airlines asked that the existing trademark be retained. This, to the designer, seemed completely wrong, as their colors were black and orange, and no two types of insignia or markings on tickets, planes, letterheads, uniforms, hangars, etc., were the same.

First, an exhaustive analysis was made to determine the most visible spots on an airplane. This was worked out with ratings—for example, a place near the nose, clear of the wings and motors on an angle toward the ground had a very high rating. It was found that the position of markings on the tail are also extremely important. The size and position of the lettering along the side was analyzed. At this point, the typical markings of the ten major airlines were analyzed, including Chicago & Southern. Colors were given a point rating, based on their known factors of visibility and legibility, and these ten airlines were again rated from a color standpoint.

The next important step in determining the correct insignia was a connotation of airline characteristics. In the majority of cases the most effective was the flying bird such as Eastern, a flying wing such as Pan American, or North West's insignia, indicative of the area the airline passed through. In the final analysis TWA had the highest rating, with C & S well down on the list. This thorough analysis established the fact that there were certain basic factors that had to be solved in order to achieve the most striking and visible marking or trademark, and these facts were turned over to the designer.

The trademark evolved from this analysis used a deep forest green and a bright yellow, this being the combination closest to black and orange with the highest visibility and legibility rating. Deep forest green replaced the black as black is an unpleasant color. Also, deep green and yellow has a connotation of the tropics, the route C & S is serving. A study was made of various connotations of speed, from this we evolved a

The aim of "family" product design through use of the same motif in product, advertising displays, stationery, etc., is to establish identity with the public . . . But a thorough study of such a program must first be made.

By PETER SCHLADERMUNDT
Van Doren, Nowland and Schladermundt

rocket-type shape with stars and streamers, which seemed to us indicative of speed, suggesting jet propulsion. This trademark was incorporated in the complete exterior markings of the plane, was tied up with the interior color scheme, and was used for marking hangars, field equipment, stationery, letterheads, and even the insignia on the pilots' and hostesses' uniforms. This presentation was made to the president and other executives of the air line, who immediately saw the value of the complete tie-up in color scheme and insignia, that denoted speed and was different from any other airline markings. While instructions had been given to retain an old marking, they unanimously accepted the new scheme throughout the whole system. The net result is that when you buy your ticket with the red and green rocket, have your bags

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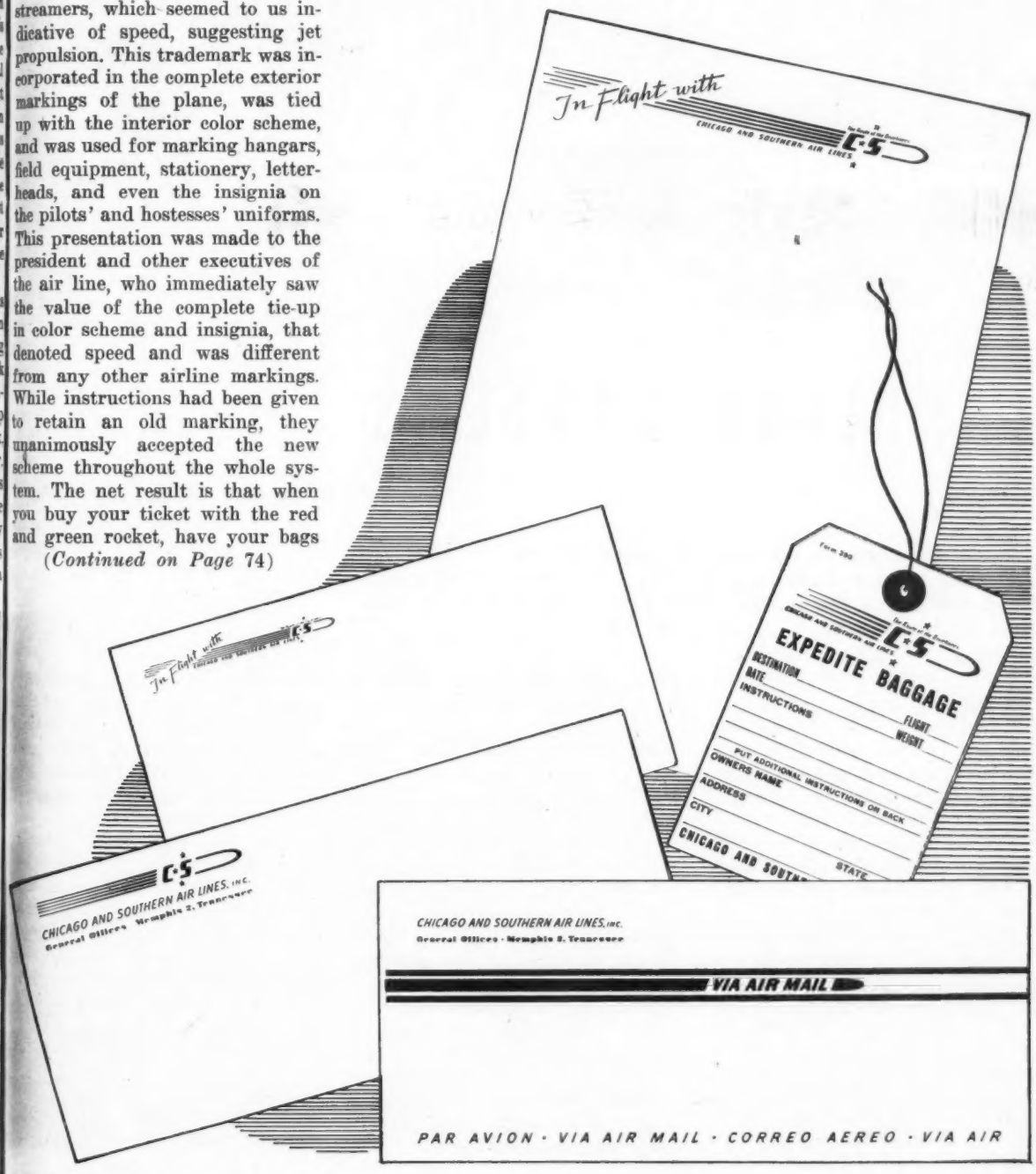

HANDLING SYSTEMS

. . . Another Jack McCormack Story

The margin between economy of operation and wasteful performance is very slight . . . Use of proper systems and equipment can swing the balance from high to low shipping costs and from low to high shipping output.

By HENRY G. ELWELL
Traffic Consultant

JACK McCORMACK, free lance industrial traffic manager, paused in the shipping room doorway to observe the loading gangs at work in two freight cars. The men were transferring cases of products from pallets which had been moved into the cars by means of an electric lift truck. Speaking to Stanley Norman, superintendent of stock and shipping, he said: "Stan, nearly everyone in this organization assumes that the utilization of those floor platforms, or pallets, results in the most effective operation. To use them may be good practice at some other plants, but in our case possibly we should turn to another system. In any event, when loading shipments please continue to check every move in line with the scheme we discussed."

Jack was referring to the problem then being studied at the Alexander Mfg. Co. For three months checks and counterchecks of the methods of handling and loading shipments of finished products had been made without uncovering any serious defects. Yet costs were too high. Top management agreed with Jack that costs could be reduced, but thus far little progress had been achieved.

Still standing at the entrance to the shipping department, pondering on the situation, Jack was a bit startled by a friendly slap on his shoulder, and a crisp voice saying: "Jack, do the loading gangs ever get into action? Seems to me that every time I come out here during an afternoon those men are just poking around." The speaker was Phillip Gordon, general manager of the establishment.

"Phil," replied McCormack, "the workmen may appear to be doing nothing each time you stop in at this department, but that doesn't signify they are loafing."

"Of course not," Gordon admitted. "Nevertheless I feel sure we should obtain greater accomplishments from them in relation to total man-hours per working day."

"I grant you are correct on that score, Phil, and that's the crux of

(*Continued on Page* 58)

Author's Note: Names of persons, companies, and places are fictitious.

WANTED...

A Crutch for a Lame Industry

Except for the motor truck, the household goods moving and storage business utilizes the methods our Pilgrim fathers used . . . The writer recommends several important reforms which should give more and better service to the customer while at the same time helping the ailing industry regain its feet.

By ROBERT F. ODELL

IT IS almost inconceivable that in these days of mechanical handling and efficient transportation methods, an entire industry should be so backward that no major improvements have been made in it since the advent of the motor truck. However, that is a fact. We refer to the household goods moving and storage business. Furthermore, the motor truck has been the only major improvement since the earliest recorded accounts of furniture storage and moving. The equipment that was used by the pilgrim fathers to transport their possessions is the same as that in use today. It consists of a strong back and a blanket or pad to protect the more valuable items. What other means of handling do we have at the present time? Sorry, the answer is none.

Let's pull the operation of this business apart, examine it with x-ray eyes, and see if it is possible to make any improvements. It will be quite a job to dissect an industry and recommend changes. Many of these changes may not be practical for various reasons, but an investigation will bring forth some ideas which might lead to others, and the net result should be progress.

Household goods moving and storage has always been considered so personal and so custom tailored that it was not practical to improve it. That is not good reasoning. The fact that it is a very personal business is the main reason for making it efficient. You are dealing directly with your consuming public, and each customer is entrusting you with his most valued possessions. The only thing nearer the customer's heart is his bank book. Because of this personal nature of our services, the scrutiny and criticism which we household goods men are subject to is much more severe than it would be in any other line. We are all our brother's customers. If we buy a can of beans which is bad, we damn the grocer; if it is a suit of clothes that doesn't wear right, we kick to the tailor. Similarly, let one little thing go wrong with a moving or storage job and our customer is right on our necks; and brother, we settle up to his satisfaction or we are soon out of business. That is why we should be the most efficient business of any and why we should have the best methods for handling the goods entrusted to us.

I have spent many years moving and storing household goods, and I am sorry to say that I am doing it in the same old ways of my grandfather and great grandfather; and if you want to, you can carry the comparison back to medieval times. That makes me a first class dope, and there are many others like me. Who are they? I'll tell you. They are all the men who are presently engaged in moving and storing household goods. You will probably not like that, my fellow warehousemen. But the next time you see two of your furniture handlers carrying a piece of furniture, go into your office, close the door so no one can hear you, and repeat out loud to the four walls, "I am a dope to allow this condition to exist." It will do you good. It will get you thinking about efficiency, and then we will have progress. Oh, how we need it! We haven't had any for five hundred years.

The only place to start this investigation is at the first operation we perform. This is when the van pulls up to the customer's door. We must start there, for there is where we first make mistakes. Let us talk first about storage and it's problems. At present the procedure is very simple. All we do is send out the van, have our furniture handlers pick up the furniture and effects, carry them down stairs and out to the van, give the items to the van packer, and then go back and do it all over again. Very simple. All that is needed is a good strong back and a handler with a mind sufficiently alert so that he doesn't fall down and break his neck. Very simple, but highly inefficient and dangerously lax as to liability. Both the inefficiency and the liability cost each carrier many thousands of dollars a year.

The first error in the present system is that we receive goods for storage without an inventory or receipt at the point of pickup. This most important duty of the warehouseman is postponed until

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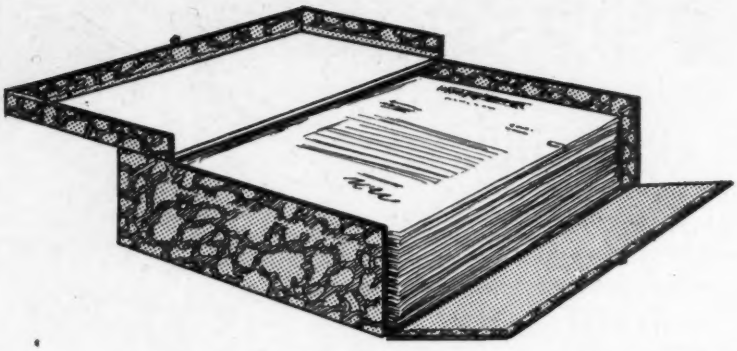


WHICH RECORDS Should Be Kept PERMANENTLY?

IN the March issue of DISTRIBUTION AGE, the retention of business records incidental to the selling function was discussed from a broad point of view. No attempt was made in that article to analyze which records are worthy to be kept forever and for what reason they possess the distinction of being vital enough to deserve perpetual retention. This article shall attempt not only to describe the various sales records which will never lose value, but will also emphasize that those documents deemed sufficiently valuable to be preserved permanently should be consulted frequently to aid in current and future operations.

It appears timely to discuss these documents now, for recently effected legislation respecting trademarks has made it imperative that certain files, previously never maintained at all, be preserved permanently. This new law requires consecutive annual sales of trademarked products in order to preserve the validity of the marks. Many concerns have trademarked articles which, for one reason or another, are not sold by them each year. This new law provides in certain cases that, in the event of two consecutive years elapsing without a sale of a trademarked product, *prima facie* evidence of abandonment is indicated. Thus, on infrequently sold brands, records depicting their sale can no longer group such sales into a "miscellaneous" category, but must itemize the brands sold so as to furnish adequate proof of those sales if the validity of the trademark of any one of them be questioned in the remote future. In fact, when sales of certain products are virtually *nil* or are stimulated merely to preserve the trademark, a separate file of invoices, bills of lading, delivery receipts, etc., should be held in a permanently preserved file to substantiate the general books and their transcribed recordings.

When we are faced with the possibility of forfeiture, self-preservation demands that safeguards be erected. The chance that we may lose a rarely used trademark will prompt a dramatic reaction far greater in scope than would be evoked by an opportunity to gain. Nobody wants to lose; prevention of loss will motivate more strongly than will the chance to profit. Perhaps this fact underlies the very prevalent belief that business records are to be kept solely for legal reasons.

When litigation arises, it is difficult to win without the documentary proof that records furnish, it is true. But often the success of legal battles lies in the quality of the legal counsel employed and the finances available to fight the suits. A firm which, bereft of its records of legal character, might succeed in a lawsuit might on the other hand sustain a loss of immeasurable severity if records of past experience were likewise missing.

Chronicles of failures and successes summarize the experience of most companies. Just as individuals learn by means of trial and error, business organizations find profitable methods and procedures by means of experiment. But experimenting is costly, and unless the knowledge gained is carefully preserved and utilized, the facts learned are lost and cannot be capitalized.

A promising selling method may be tried out, found unproductive and abandoned. Unless the story of this episode is recorded and referred to, future management will never know about it and may repeat the same or similar unavailing performance. Also, close inspection often reveals that many ideas offered today are not truly new, but are merely dressed in modern garb, having originated long ago. Were they given a trial in the past, and if so, what success did they achieve?

Repetition of the same mistakes *ad infinitum*, is not only ridiculous economics but is also an item of expense which is completely avoidable. It is simple to effect a remedy; all that needs be done is to preserve those records portraying past experience for as long as they have value—even forever—and use them.

Emulating past successes and avoiding former pitfalls requires study of the old records, which study must be tempered by consideration of the situation existent during the period inspected. A sales idea that failed to work well in 1932 may do very well today. A sales plan abandoned during the period of war-brought shortages may find sucess if tried now

By JULIUS B. KAISER

Without external statistics illustrating the conditions prevailing within an industry, the individual concern's specific reactions cannot be appraised.

Besides reflecting a company's experience against a background which aids in evaluating the merit of old ideas, external statistics have other uses. Reports of sales and other operations of competitors can be used as a barometer to judge our own progress and may also be used for reference if any of these companies reported on are under consideration for acquisition.

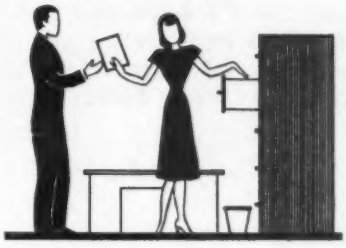
Thus, along with the records of experience, those documents which outline general business conditions are vital sales records. Their message to management will never lose interest and reference to them will add to value of future decisions. History repeats itself, and a good, firm knowledge of history will afford an important means of dealing with problems as they occur.

Among the records which are worthy of perpetual tenure are those which show how sales were made. This group is comprised of such documents as advertising copy, samples of display material, copies of sales letters offering products or services for sale, or it may tell of salesmen's training, bonus plans used to promote sales, or supply data on contests, premiums offered or other inducements to assure the success of sales efforts. These papers are rendered particularly valuable if the results

(*Continued on Page* 82)

MANAGEMENT QUIZ

A check list approach to the problem of determining WHICH RECORDS should be retained permanently as management aids in current and future operations.

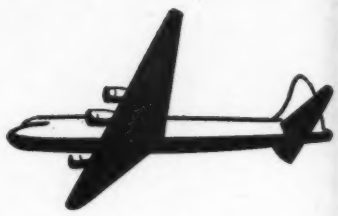


SHOULD I RETAIN IN PERMANENT FORM:

	YES	NO
1. SALES RECORDS OF TRADEMARKED ITEMS?	☐	☐
. . . A new law provides that failure to make a sale within a 2-year period sometimes is prima facie evidence of abandonment.		
2. SUCCESSFUL SALES CAMPAIGN: DETAILS?	☐	☐
. . . When a selling drive is contemplated, you only can benefit from past experience when complete detailed records relating to the various phases are available, i.e.,		
(a) Advertising copy (b) Sales letters (c) Details of contests (d) Data on premiums (e) Bonus plans (f) Personnel training (g) Details of other phases		
3. RECORDS OF DISCARDED SALES PLANS?	☐	☐
. . . Selling methods which have proved unproductive during hard times may work in the same, or modified form, under different conditions . . . Even if they won't it's important to know what NOT to do.		
4. RECORDS OF BASIC COSTS?	☐	☐
. . . In these days of rising costs, management should be able to apportion overall distribution costs among the following:		
(a) Handling (b) Transportation (c) Insurance and finance (d) Packing and packaging (e) Warehousing (f) Marketing (g) Service and maintenance		
5. RECORDS OF COMPETITIVE METHODS?	☐	☐
. . . When you know what the other fellow has done in specific circumstances, you are the more prepared for your own problem.		
6. RECORDS OF BUSINESS CONDITIONS?	☐	☐
. . . When pertinent records are kept over long periods they serve as barometers because they can be related accurately to your own business cycles.		

Some Principles for Air Cargo Terminals

The successful development of air FREIGHT as distinguished from air EXPRESS depends on the establishment of separate cargo terminals . . . Mr. Frederick discusses a proposed terminal and six principles for its construction.



By JOHN H. FREDERICK

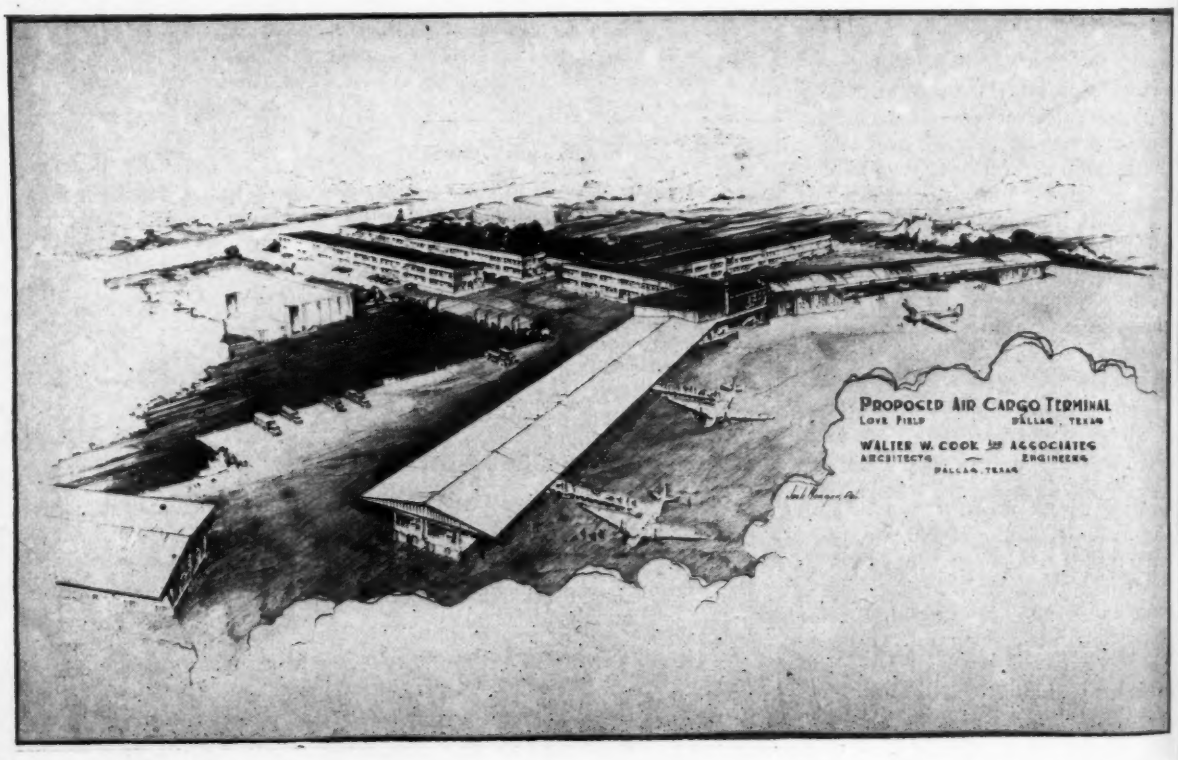
Air Cargo Consultant

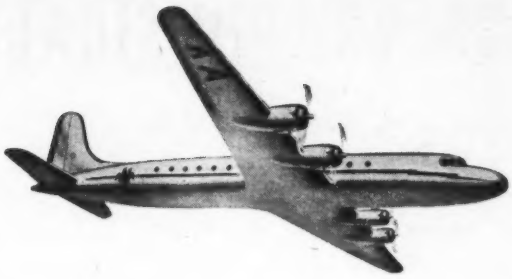
EVERYONE concerned with the development of air cargo has known that eventually it would be necessary to supply adequate airport or terminal facilities for its handling. They have also known, but disliked to admit, that as air cargo comes into its own it will no longer be possible to combine freight and passenger terminal facilities, which has been the rule up to now for reasons of expedience and because the freight business has been but a very small part of total airline traffic. From now on, however, the successful development of cargo traffic, which means *freight* as distinguished from *express*, will depend in large measure upon the establishment and operation of separate terminals for its handling.

Whether such air cargo terminals will be located on the same airports as serve passengers or on separate airports makes little difference. Their design and development along proper lines is most important. It is, therefore, interesting to examine one of the most ambitious projects for an air cargo terminal so far brought into public view. This is the Southwest Airmotive Co. terminal at Love Field, Dallas. The key-note of this terminal is utility and low-cost service primarily for the non-certificated or contract air cargo carriers, who at most airports are still entirely dependent upon special and frequently expensive loading and unloading, warehousing, delivery, pickup, refueling and maintenance facilities. At Dallas it has been possible for some of these operators to rent warehouse space at the airport, but this has meant keeping paid personnel at this point in addition to those maintained elsewhere. The same has been true of the other phases of ground handling. Physically, not one of these operators was prepared and financially, not one could afford to cut into the slim margins of profit to which the specialized air cargo operators must cling if they are to survive.

Refrigeration for perishables

(*Concluded on Page* 48)





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Recent drastic slashes in Airfreight and transatlantic air cargo rates make these time-saving shipping methods more economical than ever. All-cargo, 4-engine Airfreighters are now in operation, providing an increased amount of shipping space—assuring swifter service to a larger number of important shipping centers at home and abroad.

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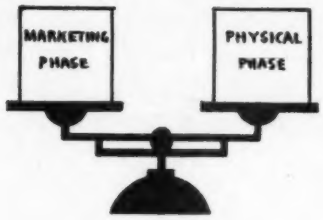
MARKETING VS. PHYSICAL DISTRIBUTION

This study was undertaken by Mr. Merish in an attempt to establish a basis for the appraisement by management of the relative importance of the purely marketing and physical phases of distribution in various industries.



By FRED MERISH

Special Correspondent

TOO much has been said already about the high cost of distribution, as though this cost were a fixed sum added by all manufacturers to the cost of production, as though a solution of the problem lay in time studies, unit costing or some other standardized routine available to all manufacturers as in the costing of processed goods. Distribution cost differs with the industry and often with the manufacturer and thus involves individualized study and application. But first one must be cognizant of the many intangibles and variations in the distribution set-up. In this article we will not offer the reasons for such costing differentials, but merely bring the variants to attention so that the reader can approach his own distribution problem intelligently. This breakdown should give better perspective.

The following factors produce wide variants in handling and marketing costs and explain in large part why some producers can effect greater economies in distribution cost than others.

THE TYPE OF PRODUCT. An analysis of figures gathered from various sources illustrates how the type of product influences distribution cost. (See Tables 1 and 2) These are before-the-war figures. Postwar figures are not available in sufficient detail and wartime figures are too distorted to be of value in drawing reasonable conclusions. However, although cost may have increased since these figures were prepared, the relative positions of the items of cost are much the same. These figures show clearly that distribu-

(*Continued on Page* 78)

HOW DISTRIBUTION COST VARIES WITH PRODUCT

Based on prewar figures as current statistics are not available in sufficient detail and too distorted to permit of reasonable conclusions.

FRUIT. Average figures per $100 Sales

Retail margin	$40.93
Wholesale margin	3.81
Merchant, shipper, broker	3.82
Freight and other transit	14.09
Packing and loading costs	17.53
Storage	.02
Grower receives	19.80

FLUID MILK. Average figures per $100 Sales. (Distributor to Consumer)

Dairy farmer gets	$55.5
Cost of processing	14.5
Transportation and delivery	21.0
Advertising	1.2
Administrative expense	4.7
Distributor's profit	3.1

FARM IMPLEMENTS. Average figures per $100 sales.

Retail margin	$21.18
Wholesale margin	
Mfg. marketing expense	11.89
Transportation and handling	2.62
Tax on product	
Manufacturer's cost	52.03
Manufacturer's profit	12.28

TOBACCO. Average figures per $100 sales.

Retail margin	$10.72
Wholesale margin	10.57
Marketing expense	4.50
Transportation and handling	1.92
Tax on product	42.85
Manufacturer's cost	21.15
Manufacturer's profit	8.29

BAKERY PRODUCTS (House-to-house). Average figures per $100 Sales.

Wheat grower gets	$11.1
Cost of milling and profit	5.6
Warehousing and handling	4.3[1]
Cost of processing bread	21.4
Selling and delivery	30.2
Baker's profit	4.8
Retailer's gross margin	22.6

[1] County elevators, terminal elevators and transportation of wheat and flour.

HOW DISTRIBUTION COST VARIES WITH PRODUCT

MISCELLANEOUS PRODUCTS. Average figures per $100 sales.

	Tires	Automobiles[2]	Gasoline	Electrical
Retail margin	$26.84	$23.36	$22.90	$30.51
Wholesale margin	15.00	.....	11.40	12.68
Marketing expense	3.77	2.84	8.70	9.00
Transportation and handling	2.00	3.61	5.20	1.16
Tax on product	.....	5.71	28.60	.....
Manufacturer's cost	45.62	58.28	21.20	39.89
Manufacturer's profit	6.77	6.20	2.00	6.76

[2] NOTE: In 1937, transportation cost on a Ford car was $3.00 for a Michigan sale and $127 for sale in state of Washington. Consumer paid the difference.

DISTRIBUTION COST OF INDUSTRIAL AND CONSUMER GOODS

These figures are based on a study made by national advertisers and the National Assn. of Cost Accountants. Costs are expressed as a percentage of manufacturing costs.

INDUSTRIAL		CONSUMER	
Machinery and tools	25.8	Drugs, toilet goods	38.8
Stone, clay and glass	21.7	Paints and varnishes	38.6
Paper products	20.4	Furniture	33.1
Chemicals—allied products	19.9	Heating equipment	32.9
Iron and steel	19.0	Office equipment	32.2
Nonferrous metals	18.5	Confections—beverages	31.6
Textiles	9.2	Grocery products	27.1
		Household appliances	26.5

TRANSPORTATION COSTS

(Expressed as a percentage of value at destination)

Hogs	4.32	Dried vegetables	24.67
Cattle and calves	4.89	Fresh berries	11.68
Sugar beets	11.68	White potatoes	32.15
Peanuts	13.54	Fresh apples	29.17
Barley and oats	16.06	Citrus fruits	32.25
Cereals	3.23	Onions	42.30
Cheese	4.21	Cabbage	49.37
Dried fruits	7.02	Tomatoes	50.26
Wheat flour	8.01	Fresh grapes	62.41

CHANNELS OF DISTRIBUTION

Handling and marketing costs differ with the distributive channels used. The following tables cover 42 gasoline and oil refiners grouped by channels of distribution and show a wide variance in items of distribution cost.

DISTRIBUTION COSTS THROUGH	Wholesalers	Wholesalers Retailers	All types of customers	Brokers and manufacturer agents
Salesmen salaries	.59	$3.37	$1.64	.06
Other marketing expense	1.71	5.19	4.24	.63
Commissions, bonuses	1.88	1.21	4.43	.03
Advertising—promotion	.88	2.21	1.66	.10
Outward transportation	4.25	2.98	7.01	.63
Other distribution costs	3.27	8.45	9.11	3.34
Total distribution cost	$12.58	23.41	28.09	4.79

FREIGHT RATE FACTORS IN DISTRIBUTION

Freight rates, which are price determining and to some degree price determined, are elements of vital importance in distribution, but other factors of equal or greater importance must be considered by management in projecting branch sales and warehouse operations.

By G. LLOYD WILSON

FREIGHT rates are prices for transportation services. Transportation services are essential parts of the processes of production, manufacture and distribution. Freight rates, therefore, become elements in the prices of raw materials, manufactured and semi-finished goods, industrial goods, and consumer goods.

If the producer, manufacturer or distributor has no competition, he may add to the cost of production the transportation charges and pass this added increment along to the next purchaser. In the absence of any competition at any level of production, manufacture or distribution, the freight charges or costs can be successively passed along from producer to manufacturer, from manufacturer to distributor, and from distributor to consumer, who becomes the donee of these accrued increments of cost. If the producers, manufacturers or distributors must contend with competitors — either those engaged in producing the same or other articles competitive as substitutes—they must absorb and bear any disadvantages in freight rates or costs which are higher than those paid by their competitors.

Freight rates, for these reasons, are vital to the successful operation of every industry in the market. In order to develop and retain traffic, carriers must compete with each other in freight rates as well as services. This constitutes

Other Factors

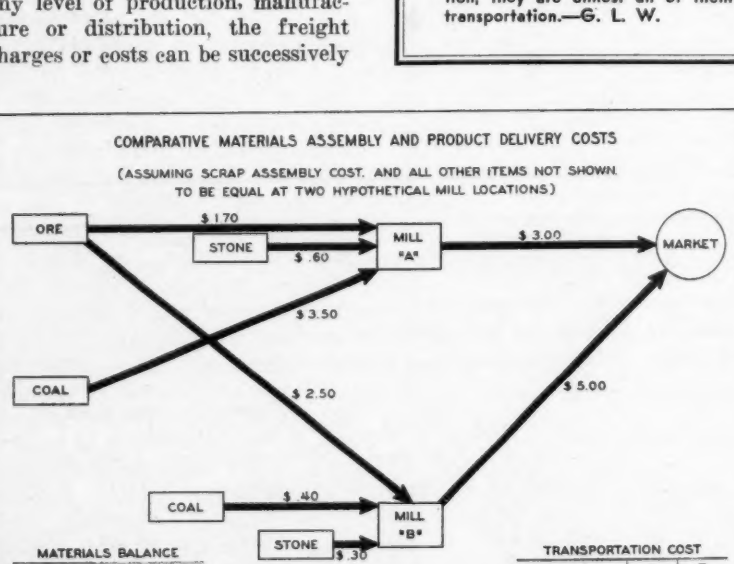
Specialists in any field must exercise restraint to avoid ascribing too much importance to those aspects of industrial and marketing problems which fall within the orbit of their specialized interests. There is a tendency, for example, for transportation and traffic men to see industrial location problems exclusively in terms of transportation services and rates. There is more to the problem than this, and some of these factors are:

1. The extent of the market area to be served.
2. The freight rates from the distribution points to the markets.
3. The availability of raw materials and supplies.
4. The freight rates from the sources of supply to the manufacturing or distributing points.
5. The ratio of the weights of raw materials and supply materials to the weights of finished products.
6. The availability of transportation facilities.
7. The relatively favorable adjustment of inbound and outbound freight rates.
8. The availability of local transportation facilities and services for employees and for local delivery services.
9. The availability of water and other utility services.
10. The availability of adequate sites for plants and warehouses and space for expansion.
11. The location of the distributor's facilities in respect to the market to be served with reference to time in transit and rates.
12. The availability of employee housing or sites for same.
13. Real estate prices for plant and warehouse sites and housing.
14. Availability of fuel or power and the prices.
15. Taxes.
16. The presence of favorable or unfavorable local restrictions which might facilitate or impede operation of the industry.

It will be noticed that, although some of these factors are not transportation, they are almost all of them either directly or indirectly connected with transportation.—G. L. W.

COMPARATIVE MATERIALS ASSEMBLY AND PRODUCT DELIVERY COSTS

(ASSUMING SCRAP ASSEMBLY COST, AND ALL OTHER ITEMS NOT SHOWN, TO BE EQUAL AT TWO HYPOTHETICAL MILL LOCATIONS)



MATERIALS BALANCE

PRODUCT	1.0 UNITS
MATERIALS	1.6 "
PIG IRON	.8 "
ORE	1.6 "
STONE	.4 "
COAL	1.1 "

TRANSPORTATION COST

ITEM	A	B
PRODUCT	$3.00	$5.00
ORE	2.72	4.00
STONE	.24	.12
COAL	3.85	.44
TOTAL	9.81	9.56
ADVANTAGE "B"	-	.25

carrier competition. Areas of production of raw materials and those engaged in this production must seek freight rates which will enable them successfully to operate their properties in competition with other areas in which the same or alternatively competitive commodities are produced. This results in producer competition and becomes a powerful influence upon freight rates. Manufacturers and distributors, in turn, must seek equitable rates upon inbound raw materials, semi-finished articles for processing, and finished products, and outbound rates upon the products to markets so that they may compete with each other for trade. This constitutes market competition. It also exerts an influence upon freight rates.

Freight rates, therefore, are not only important factors in affecting the competition among producers, manufacturers and distributors; they are also greatly affected by the presence of producer, distributor and market competition. The relationship of freight rates and prices in a competitive system of distribution is reciprocal. Freight rates are price determining; they are also to some degree price determined.

Freight Rates In the Distribution of Raw Materials

The natural raw materials and basic commodities which enter into the production of goods are located where they have been placed by nature and developed by human discovery, development or exploitation. The matter is not one entirely beyond control insofar as freight rates are concerned, because the deposits of natural raw materials differ as to type and quality grades. Generally, those which are located geographically closer to the industries in which they are to be used, or those more efficiently mined or quarried or otherwise extracted, are brought first into production. Those less favorably situated, or less economically produced, or of lower quality or different type, are held in reserve for use at a later time, after the supplies of more efficiently produced and transported commodities have been depleted. Other raw materials, which are not confined by the accident of natural location, but which are grown or raised, are limited by climate and soil conditions and their ability to be produced and sold economically. This production can be increased, even in cases where they cannot be produced efficiently from an economic standpoint, by the artificial stimulation of bounties or protective tariffs which raise a "price umbrella" over domestic production. Their production can also be stimulated by subnormal freight rates. Such arrangements have been made by the Canadian railroads through low rates on grain from the far western Canadian provinces to eastern Canada by means of the special Crow's Nest Pass rates or rates made to equalize those made by the railroads under this agreement.

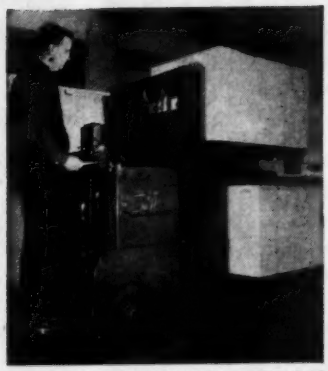
The Hoch-Smith Resolution, 1925

During the period of agricultural depression following World War I, the Hoch-Smith Resolution of the Congress in 1925 directed the Interstate Commerce Commission to consider the prevailing conditions in various industries, including agricultural industries, and to give consideration in rate-making to the conditions in these industries, insofar as it was legally possible to do so, that commodities might move freely. The ICC was authorized and directed to make a thorough investigation of the rate structure of common carriers, subject to the Interstate Commerce Act, to determine the way in which and the extent to which existing freight rates were unjustly discriminatory, or unduly preferential, imposing burdens

(*Continued on Page* 52)

Pallet-and-Post

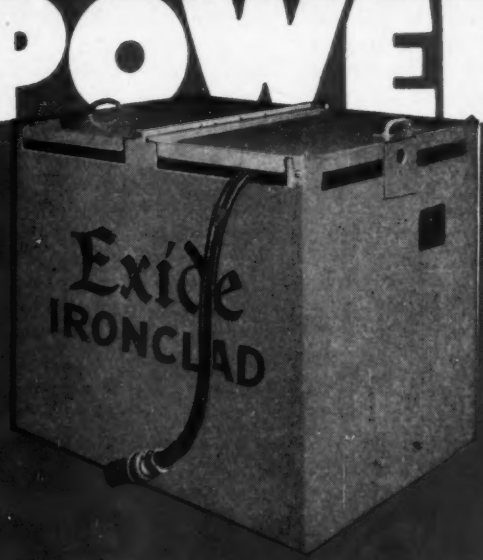
The mass handling of long, thin objects is greatly simplified as shown above by the addition of posts to a standard pallet, as developed by Yale & Towne materials handling engineers. Metal brackets are bolted to each corner of the pallet and posts inserted. Transverse lengths of channel iron are placed to span the upper post extremities, and to provide a base for upper layers of pallets and add rigidity to the pallet.



WRIGHT HIBBARD HIGH LIFT TRUCK

DEPENDABLE

POWER



EXIDE-IRONCLAD POWER AND BATTERY ELECTRIC TRUCKS

They're saving time and cutting costs on materials handling jobs like yours

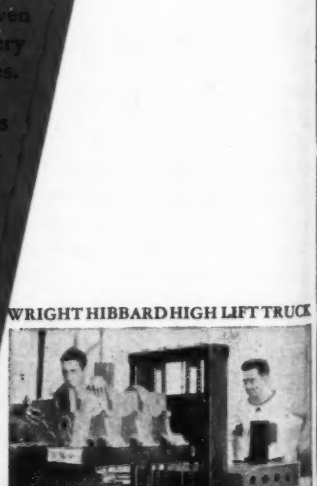
More and more companies, with operating conditions that closely parallel yours, have discovered the way to faster, safer and more economical handling of materials. They have given the job of lifting, hauling and stacking to the efficient battery electric truck and equally efficient Exide-Ironclad Batteries.

The high electrical efficiency of Exide-Ironclad Batteries is due largely to the unique construction of the positive plates. Each of these plates consists of a series of slotted, hollow tubes which contain the active material. So fine are these slots that, while they permit easy access of the electrolyte, they prevent the active material from readily washing out. Not only does this add to life of plates . . . and battery . . . it also provides higher power ability and capacity, assuring dependable, day long performance with maximum safety and minimum maintenance.

Write us for a FREE copy of Exide-Ironclad Topics, which contains "Case Studies" of materials handling problems. It tells how to cut handling costs up to 50% . . . covers latest developments in handling materials from receiving to shipping.

THE ELECTRIC STORAGE BATTERY COMPANY
Philadelphia 32
Exide Batteries of Canada, Limited, Toronto

WRIGHT HIBBARD HIGH LIFT TRUCK



The Need for Materials Handling Departments

Industrial plants are waking to the need for materials handling, but too often the setting up of a system is left to production-minded executives. Materials handling is a specialist's job, and industry needs materials handling departments headed by vice presidents with authority.

By MATTHEW W. POTTS

Materials Handling Consultant

AT LONG last a number of large industrial concerns are becoming vitally interested in the subject of materials handling. The work that was done by the writer and a few other earnest materials handling engineers in their educational programs in the army and navy during the war is beginning to bear fruit in industry. Thousands of individuals who had no knowledge of materials handling began to learn something about this important subject through the war either as civilians or military personnel. The civilians learned about it in the warehouses and in the plant shipping departments. Military personnel learned about it in the field under trying operational duties, and within the warehouses at advance bases. They began to realize the importance of being able to move materials quickly and safely, with the minimum amount of manual effort and the least number of individual handlings. Thousands of man-hours were saved. Millions of cubic feet of storage space were saved. Innumerable expenses were eliminated, and our logistics were of the highest order, even beating those of the famed German panzer divisions after we had materials handling coordinated and developed.

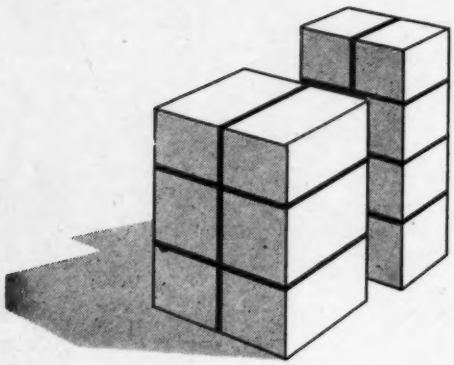
Unfortunately, we did not start the development of these handling systems until long after we were in the war. No preliminary planning had been done. This same pattern is being followed in industrial plants today. Men are becoming conversant with materials handling, and a number of these men have executive positions, but they are so burdened with production thinking that they have lost track of the fact that materials handling, while it aids production, speeds up production and helps to increase production, *is not a production operation.*

Too frequently, the materials handling changes are approached in a haphazard manner. Some industrial plants have gone so far as to establish materials handling departments and committees. Again, however, these departments are headed by individuals who are *production-minded.* They think in terms of production. Materials handling is an *analysis* of production, a complementary system which brings materials to the production line fast, and takes them away faster, thereby increasing the efficiency of the production machine. However, it is not a production operation, and cannot be approached from a desk and worked out in a mathematical fashion. It requires analysis of each operation, singly and in combination with all other operations, as well as knowledge of the proper methods of storage, rate setting, time studies, and even the development of the proper skids, pallets, jigs and fixtures, to make the materials handling operation properly fit into the production scheme.

For example, let us assume we handle a casting through several operations—degreasing, pickling and possibly spray painting. All of these apply to production. The production department has shaken every penny and quarter of a penny out of its production operation cost, and is now faced with the need of further lowering costs in order to meet competition or to produce a better product at the same price. Now comes the opportunity for materials handling analysis and engineering, requiring close coordination of design engineers, machine tool layout men, factory planning department and the materials handling department.

(*Continued on Page* 65)

CONTROL SYSTEMS



There are two major controls which advantageously can be employed in the preparation of goods for shipment: 1. Job, labor and materials control. 2. Technical control. In this article, Major Saperstein discusses the many benefits which can result from a systematized approach to the problems of cargo preparation.

By CHARLES L. SAPERSTEIN

Packaging Consultant

THIS is the story of Bill, a typical packing and crating foreman in a large cargo preparation activity. Since Bill is typical, we are likely to find he is operating without any organized system of work-control. Actually Bill can use to great advantage two types of control in preparing merchandise or equipment for shipment. The first is job, labor and materials control. The second is technical control.

Bill has long operated without either. His has been a sort of carry-it-in-the-head, vest-pocket responsibility. After all, all material requiring preparation for shipment, somehow, was completed. Why add the burden of a lot of record-keeping? His demands for labor and supplies and the rate of output have never been seriously questioned. His skill or "hunches", as to the extent of preparation necessary to safeguard a shipment have been relied upon explicitly.

This is no reflection upon Bill and other capable individuals holding down similar jobs. Bill does a conscientious job, works hard—often under pressure—and is quite the pride of the entire organization. Executives bring in all sorts of personal things to be packed and shipped—a radio for a son in the Pacific, a watch to be returned for repairs, a gift for Aunt Susie—yes, Bill, the chief packer is the fair-haired boy of the front office and is getting along.

Now enters a "systems" man

Ability to Submit Comprehensive Daily Activity Report indicates effective control. Foreman's Report Form will serve in many major packing operations.

PACKING FOREMAN'S SUMMARY REPORT

FOR .....(DATE)

No. of personnel Reporting: .....
No. of Regular workers absent:
Work Orders Brought forward .....
New Orders Received .....
Total Orders on Hand: .....
Work Orders Accomplished today: .....
Open Work orders carried forward: .....
Number of Units Packed Today .....
Previously packed this month .....
Total Units Packed, to date this month .....

Number of shipping boxes constructed today: .....
Number of shipping Crates constructed today: .....
Number of Boxes Stencilled today .....
Number of Boxes Strapped today .....
Railroad Cars, Blocked & Braced today .....

List briefly any repacking, repairing or special jobs performed today: .....

Materials requisitioned or purchased today: .....
Other Comments: .....

(Signed) .....Foreman

Simple work-order Form for every job, becomes heart of Packing Room System.

Shipping Department — Cargo Preparation

WORK ORDER

Description of Material ..... Number .....
Number of Units ..... Date .....
Work to be Accomplished .....

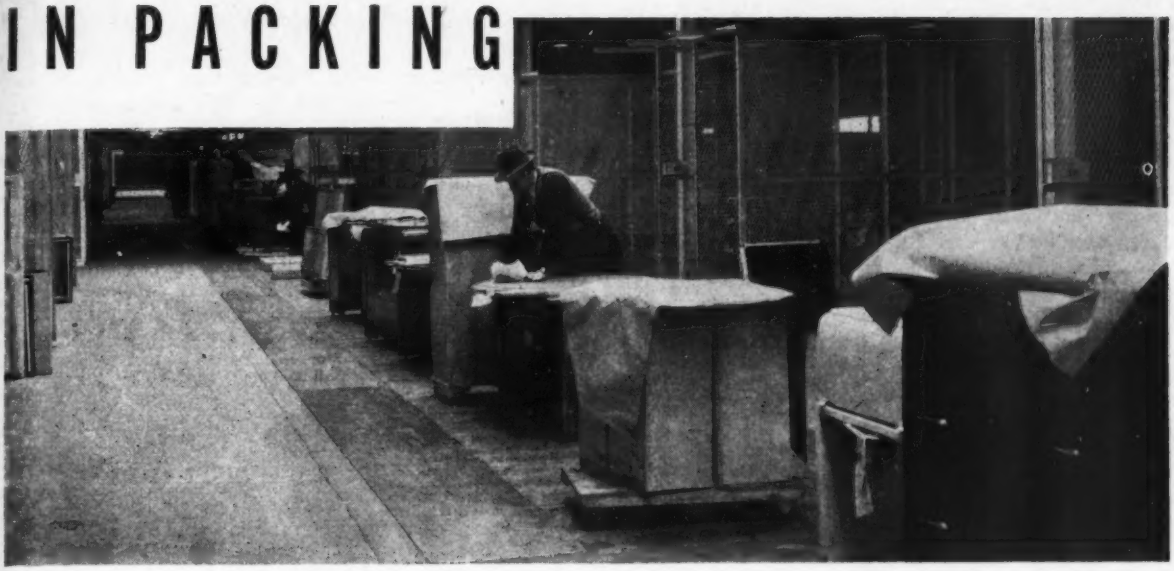
Special Markings or Stencilling: .....
When Wanted: .....Disposition: .....

(Signed by:) .....

Job assigned to ..... Date: ..... Hour: .....
Job completed: ..... (Date) ..... (Hour)
Number of Men engaged: ..... Total Man-hours used: .....
Materials & Supplies used: .....

(Signed by:) .....
Packing Crew Chief

IN PACKING



Details of past packing practices should be preserved in record form for full efficiency.

who is not pleased with the complete lack of control he finds in Bill's activities. True, the shipping clerk receives his copy of each invoice covering outgoing merchandise. Bill sees the file of "open" invoices and can always estimate the work before him. Further, he actually receives merchandise sent down for packing. Bill, also, is privileged to share in the sales office "pressure" calls to expedite this delivery or that.

From all of the foregoing Bill assigns jobs to various packers and box-makers, generally supervises progress and does a lion's share of the work himself. Since eveything is getting out, at first Bill sees no sense in the recommended organized procedure and under his breath, murmurs, "trouble-maker!"

It is pointed out that a "system", in addition to giving the firm a true knowledge of the extent, value and performance in its cargo preparation functions, will also serve as a protection to Bill, lessen his work, simplify the complexity of his responsibilities, all with a greater degree of control than ever. Skeptically, Bill agrees to give it a try. Within a short period of time, nothing could persuade Bill to go back to the old.

Here briefly are some of the results responsible for Bill's conversion and an explanation of the simple controls introduced. Before, at the end of a given period, neither Bill nor the firm had tangible record of just how much work had been accomplished. Estimates were based on general observation or on guessing because cost figures were non-existent. Bill could not show the average number of man-hours required to prepare over a long period a certain item or case for shipment, nor could he furnish average cost of overhead. He could neither justify his expense nor could he prove increasing efficiency or increasing worth of his department when such was the case.

Almost immediately a situation arose which proved to Bill the value of having intelligent figures. As must happen with all businesses, there was a dull period and new orders fell off. In the case of Bill's firm, sales were off 20 percent and in time management sought to adjust operating and production costs accordingly. Bill was invited to a conference with all foremen to discuss reduction of personnel and other economies. Fortunately, Bill had daily production figures.

Shipments had been running to smaller lots and broken cases, necessitating that much more packing. Further, as happens in such situations, there had been more cancellations and returned ship-

(Continued on Page 73)

PACKING & CRATING TECHNICAL SPECIFICATION

Standard Preparation order for .....

This specification is for—Domestic Rail Shipment ( )
Export ( )
Local Carrier ( )

Special Preparation of .....
Merchandise for shipment .....
Inner Packing & Protection .....
Diagram & Specification for shipping Container:
Materials Required: .....
.....
.....
Style of Construction: .....
Strapping & Reinforcing: .....
.....

(Signed) .....
Packaging Engineer

File Reference:
Packing Compliance Order:
No. ..... Date .....
(This order supersedes P.C.O. No. .....)

Technical Instructions are often necessary to guide Packing & Crating activities

and facilities for wet-weather cargo handling were simply not in existence at Love Field. But Dallas was not the exception in this situation. It is the case all over the country and many a potential air cargo shipper is deterred, not by conditions in the air, but by conditions on the ground.

In planning their development Southwest Airmotive Co. was convinced that, viewing air cargo as a distinct commercial and civic advantage to any city, local interests should help in solving at least the major ground handling problems. Terminal companies, they were sure, could form mutually profitable and lasting arrangements with the cargo carriers. With that as an objective they discovered the following governing principles for air cargo terminals, principles which they are following in their own planning and development.

1. The air cargo terminal building should be about 100 ft. by 50 ft. and should be plain and simple, not unlike the familiar motor carrier terminals. The concrete floor should be about the height of a "bob-tail" truck bed. There should be "roll-up" doors for weather protection.

2. Warehousing on the floor of a terminal building should be sufficient for at least three DC-4 loads, so arranged as not to interfere with the movement of cargo from plane to truck and vice versa. A refrigeration room about 1,000 cu. ft. in size, with a temperature range of 40 deg. for foodstuffs, 50 deg. for flowers, and a small section which can go as low as 0 deg. for certain meats, will solve its purpose at least at the start.

3. Manual lifting, pulling, shoving and tugging should be eliminated entirely if possible in loading the planes. SAC intends to handle this problem by using a continuous, reversible conveyor belt mounted on wheels, which can be hydraulically adjusted to the plane door-height to load or unload to the terminal dock. Moved up and down the length of the dock and provided with a canopy for bad weather, this device, or several of them to accommodate more than one plane at a time, is thought to solve the problem. Supplementing the movable conveyor will be fork-lifts for heavy cargo such as machinery, as well as a number of hand-propelled four wheel trucks which can be of use on the terminal dock and also on the ramp. Because the average package of air cargo is small, its two major dimensions totaling about 40 in., most shipments can be handled manually in the terminal. As time goes on and specialized materials handling equipment for air cargo terminals is developed SAC will install it.

4. SAC proposed a packaging service but discovered that this would not be in demand since practically all cargo arrives prepared for shipment. However, the intention is to inspect inbound and outbound shipments and to repair the wrappings of those packages which have become torn or broken. Spot checks of package weights will be made but usually weights as declared by shippers will be accepted.

5. Pick-up and delivery services will be contracted for with a Dallas trucking concern which, it is anticipated, will keep at least two trucks "on call" 24 hours a day. Given exclusive rights to handle all cargo passing through the terminal, this motor carrier, it is felt, should be in a position to operate profitably at a lesser rate than the 35c per 100 lbs., with a 75 cent minimum, now applicable in connection with airline airport-to-airport tariffs.

6. Complete records will be kept on all shipments and standardized airbills and bills of lading will be used. SAC contemplates serving as a trans-shipper for certificated airline inter-line shipments, if possible, as well as for inter-line shipments from other operators.

Charges for the terminal services just mentioned have not yet been determined. Whatever they are, they will undoubtedly be on a per 100 lb. basis except on certain "weightless" shipments such as cartons of cut flowers, for which some sort of cubic displacement fee will have to be established. SAC, like the air freight carriers, realizes that the proposed union terminal will be successful only if the "gingerbread" is sheared from its charges, just as it must be clipped from the building itself.

Systematized Distribution

"It is in distribution that industry and commerce can make its greatest progress and cut costs the most in the days ahead," Carl Moeller, Director of Field Activities, The Yale & Towne Mfg. Co., Philadelphia, told the Junior Traffic Club of Chicago. In order to accomplish this end, he said, industry must systematize its distribution, rather than merely acquire a lot of heterogeneous materials handling machinery. He warned that industry must study its own peculiar problems of handling, for "one type of equipment won't do for all jobs." He cited the importance of pallets in the distributive chain, and recommended that manufacturers shipping out on pallets insist that goods shipped in to them be on pallets. He concluded by saying, "The nation is faced with the toughest distribution problem in history," and told the club that they could help by "promoting better means and methods of keeping goods on the move."

TRAINING EMPLOYES . .

(*Concluded from Page* 19)

ment. A two-day course on handling invoices and other forms used for checking, receiving, marking or returning merchandise follows.

In the case of a marking room employe (in most case female workers) the training program is not quite as extensive but they are taken to the various points of operation where the procedure is explained although they do not go through the actual work other than the specific type of work they are hired for. In fact, in the past three years, we have four new assistant buyers as well as three new buyers, taken from the ranks of our marking and stockroom girls.

Now please do not confuse this primray training given a new employe with the apprenticeship training given a veteran under the G.I. Bill of Rights. I also have an assistant, who is under my supervision for this type of training which is a four-year course. In many respects it is very similar to the short course given a new employe, however it is a great deal more extensive as it includes general office work, rates, tariffs, tracing, routing and nine months outside schooling in traffic work, as well as on the job training.

In closing, I might mention that from time to time group dinners are given by all departments for the purpose of bringing our people closer together in order that they will cooperate with one another for the betterment of our service through more efficient operation.

Associated Warehouses Meeting

At the recent semi-annual meeting in Chicago of the Associated Warehouses, Inc., presided over by Robert L. Lester, president, sales plans were developed, and a program for selling manufacturers and distributors on the idea of public warehousing was proposed. Modernization programs of all of the warehouse members of the association were discussed, including modernization, new construction, and new mechanical devices. It was felt that the meeting was eminently successful, and that warehousing will, in the next few years, play an increasingly important role in distribution.

STREAMLINED DISTRIBUTION— (*Concluded from Page* 18)

The rail tracks have been so located in reference to the interior warehousing sections, that incoming cars with merchandise can be spotted at an average of 75 ft. from the bays where the goods will be stored. The planned handling procedure is that sufficient help will be dispatched to the interior of a car to place the unit packages of merchandise on pallets. These pallets will then be moved by fork lift an average of 75 ft. and never more than 100 ft. to be stacked in the designated storage bay. The stacking limit will be 12 ft., under a 14-ft. roof. The fork lifts will be of one-ton capacity; and all fork lifts and tractors to haul trains of trucks will be electrically operated.

It is our hope for the future that we soon may receive much of our incoming shipments from manufacturers on pallets, which of course would lessen our warehousing labor. However, such a development probably must wait on rail rates adjustments more favorable to the use and return, or general exchange of pallets.

Arrangement in our new building also will give special attention to the most economical handling of out-going merchandise orders. We are assuming that a large percentage of this merchandise will be received from manufacturers in unit packages which will need only new labels for shipping on to our dealers. Another part of the Hibbard distribution plan which we are promoting, to cut our consumer distribution costs, is to stimulate heavier "line buying" by our retail hardware dealers. This plan also will be aided by another part of our hardware merchandising program—to develop a higher degree of concentrated purchasing of single-line products from specializing manufacturers.

In the new building, under our proposed operating system we will divide the average shipping order into two parts. The first part will be for items contained in our open stock section. This section will consist of a long double row of bins, where the goods will be laid out in strict numerical order by departments, with no attention given to the usual factory numbers. We are very hopeful for the economy promises from this part of our new set-up, since studies have shown a possible time saving of 25 percent in filling orders from stock so arranged. Also, it will be possible for an order clerk in a very short time to become familiar with the stock from which he must assemble.

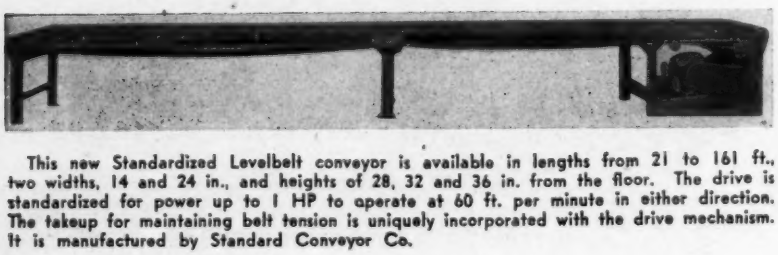
Under this plan, an order sheet will be placed on a truck attached to a drag line which will take the truck on a complete circuit of all the open-stock bins. Each clerk along the line will assemble goods only from his restricted department. The circuit will be completed at the packing tables, where the shipment will be checked and packed and labelled, and shipping specifications will be attached. Then the packed boxes will be routed along a conveyor which brings them to the dispatch desk. Here they are loaded on a warehouse truck and the other part of the order, specifying for the original packages, is placed on the truck and attached to another drag line conveyor, which makes a circuit of the full package merchandise. Again the clerks from the various sections fill their part of the order. By the time it has completed the second circuit it ends up in the shipping department and the truck, with the order all completed, is detached from the drag line and taken by a tractor to an out-bound trap car or motor truck.

The only elevator in our new building will be a freight lift to the second floor of the front office section. Persons wishing to reach the second floor will walk up. One of the novelties of the new building will be an assembly hall to seat 1,000 persons, to be equipped with stage and screen for film showing. This auditorium will afford opportunity for get-together meetings of our employees; for educational sessions for our field sales force; and for special dealer conventions. Also, on the first floor will be a cafeteria with seating capacity for 500 persons.

Another feature of the building which we also consider quite important, will be a corner ground floor space for a combined sample room for our dealers and model hardware store open to retail customers of the neighborhood. At present the neighborhood is rather sparsely settled as a neighborhood retailing center, being at the dividing corners of two different municipalities. However, the trend of the general area is toward the development of neighborhood business centers, and we doubt not that our "model" hardware store will soon have a flourishing local trade, also affording our company valuable practical merchandising experience.

We have been asked many times about probable savings from our new one-story warehouse which we expect to be completed by April 1948, as compared with costs in our older 14-story building. We have made advance rough estimates, and we feel certain that the savings will be substantial. However, we do not care to make any definite predictions. Rather, we shall wait until after our new building has been in use for some time, when we can speak from actual experience. But we do believe that industry in general should be willing, at any time, to make changes in its established distribution methods, whenever new conditions seem to warrant

Standardized Belt Conveyor



This new Standardized Levelbelt conveyor is available in lengths from 21 to 161 ft., two widths, 14 and 24 in., and heights of 28, 32 and 36 in. from the floor. The drive is standardized for power up to 1 HP to operate at 60 ft. per minute in either direction. The takeup for maintaining belt tension is uniquely incorporated with the drive mechanism. It is manufactured by Standard Conveyor Co.

PACKAGED CARGO

(*Concluded from Page 22*)

in ports having piers equipped with the rail system, which would be warranted where heavy tonnage movement regularly occurs. However, a ship may load or discharge, although more slowly, at non-equipped ports. This is done by de-palletizing the carriages on the side port deck level, within the ship, and lowering pallet loads to the pier by means of extrudable overhead cranes operating through the sideport openings. These cranes retract when the ship is underway.

The System is especially suited to installation in C1, C2, C3 and C4 Maritime Commission hulls. The principal alteration is the elimination of most of the topside lifting gear, the addition of one or more decks in the 'tween deck space, an additional deck on the weather deck (for a C2), an installation of rails, elevators and conveyors. The cost about equals the cost of the ship's original handling gear, about $400,000 on a C3. Pier installation would cost about $250,000.

The weather protection and pilferage protection afforded by large containers can be equalled for the pallet by shrouding the load in waterproof reinforced paper before strapping, if such protection is desired.

The Ship and Shore Cargo Loading System will begin to fill a great present and future need when conservative (not to say brass bound) members of the marine fraternity reach out and grasp this new tool and use it to put certain areas of the business back into the black. Furthermore it will make possible the operation of new types of ship combining passenger and freight operation on passenger schedules, doubling sources of revenue from certain routes and spreading out the seasonal peaks. Ship and Shore is a radical change from the hook and crane type handling so prevalent and expensive today, but even Noah is supposed to have used a ramp and a measure of self propulsion for his ancient cargo operation, which is generally conceded to have been profitable for the community.

FREIGHT RATE FACTORS—(*Continued from Page* 43)

upon or giving advantages to various localities or sections, or to various types of traffic or commodities. The commission was directed to make such rate adjustments as it found necessary to correct defects found to exist. The resolution directed the commission to consider the following elements in making rate adjustments:

1. "the general and comparative levels in market value of the various classes and kinds of commodities as indicated over a reasonable period of years to a natural and proper development of the country as a whole;" and,
2. "the maintenance of an adequate system of transportation."

The commission was to make such lawful changes in the rate structure as would promote the freedom of movement of the products of agriculture, including livestock, "at the lowest possible rates compatible with the maintenance of adequate transportation service." This was to be done with the least possible delay, because of the then-existing severe depression in agriculture. The commission was directed also to permit nothing to delay decisions in pending cases before it involving rates on agricultural products, and to decide such cases in accordance with this resolution.[1]

The ICC, in one of the longest and most searching investigations it has ever undertaken, heard voluminous testimony with respect to the effects of freight rates upon industrial and commercial developments. It ordered the adjustment of rates upon many commodities and general rate revisions in Western Trunk Line Territory as a result of its investigation in this case, ICC Docket No. 17000. Many of the comodities involved in this comprehensive investigation were products of agriculture and minerals, although the rates upon semi-finished goods and finished articles were affected in many cases. In considering the rates upon raw materials or supply commodities they cannot be appraised by the consideration of themselves alone; they must be examined with relation to the rates on the same or other commodities which can be used alternatively, the rates upon finished or semi-finished goods in the manufacture of which the raw materials or supplies are used, and the rates via different competing carriers.

The absolute rates on raw materials or supplies may diminish or even prevent the movement of the goods under certain circumstances. If the rates are so high that they exceed the difference in the value of the commodity at the point of production and at the place at which it is to be used, obviously the commodity will not be moved. Either the same commodity will be bought from another source of supply, or if there are other carriers whose rates are lower, the same types of raw materials or supply commodities will be transported from the same or other sources via other carriers. If the same commodities are not available elsewhere, the demand for the commodity will be supplied by one which can be used alternatively. If fuel coal rates are too high, petroleum or other fuels will be used. It can be seen that the relative rates on competitive commodities are of great importance to the producer of the raw material.

Materials Assembly and Product Delivery Transportation Costs

A factor of great importance in raw material rates is the relationship between the rates on the raw materials and the rates on finished products from the point of manufacture to markets. The relative weights of raw materials and finished products must also be considered. If the rate on raw materials from the point of production to the place of manufacture is one half the rate on the finished product from the manufacturing point to destination and two weight units of raw materials are required to produce one weight unit of manufactured product, due to the elimination of half the raw material in the process of manufacture, the transportation charges on the raw materials and manufactured articles are really equal.

The relative transportation charges on raw materials, weight considered, and on finished products may be illustrated in the competition of two hypothetical steel mills for an identical market. If we assume that the costs of assembling scrap metal, price of scrap and freight charges, and other items are equal at mills A and B, this problem may be illustrated in the accompanying diagram prepared by Mr. T. L. Fossick. (Fig. 1.) The materials balance at each mill is assumed to be identical:

iron ore..1.6 units of weight,
coal .....1.1 units
stone ..... .4 units
pig iron ..... .8 units
materials .....1.6 units
product .....1.0 unit

If the rates on ore are $1.70 per ton to A, and $2.25 per ton to B; the rates on coal $3.50 per ton to A, and 40c. per ton to B; and the rates on stone 60c. per ton to A and 30c. per ton to B; and the rates on products $3.00 per ton from A and $5.00 per ton from B, the total transportation costs, applying the formula shown in the materials balance, on raw materials and finished product are $9.81 per unit at A, and $9.56 per unit at B, giving B a transportation cost advantage of 25c. per unit. Mill A must either meet this cost by absorbing it, thereby reducing the margin between its sales price and costs of production, or retire from this particular market. It may seek other markets in which its transportation costs on raw materials and finished product give it an advantage over other mills or where it at least has less disadvantage than in the case cited.

The relative freight rates on raw materials, weight considered, or materials assembly costs, and on finished products to market considering the weight of materials required to manufacture the product, or product delivery costs, are important in determining the location of industries. If the rates on raw materials and supplies are

[1] Hoch-Smith Resolution, Jan. 25, 1925. (43 Stat. L.801).

high in comparison with the rates on the finished products and the weight of product is high in proportion to the weight of raw materials, industries tend to be drawn toward the sources of supply, particularly when several different raw materials are required. Thus if coal, iron ore and limestone are all found within a short distance of a common point, and the rates on these commodities are high when compared with the product rates, weight relationship considered, a steel mill will tend to be esatblished close to the source of supply of the raw materials. If, on the other hand, the rates on the raw materials are low in comparison with the rates on the finished product, and if the weight units of the raw materials required to produce a unit of product are small, then the manufacturing industry is drawn toward the markets it seeks to serve. The considerations can be stated in a rough formula. The assembly costs consist of the weight of the raw materials in tons multiplied by the rate from the point of production per ton mile multiplied by the distance in miles from the point of origin to the manufacturing center. The distribution costs are determined by the weight of the finished product multiplied by the rate on the finished product from the manufacturing point to market multiplied by the distance from the point of manufacture to the market.

The assembly cost, ac, therefore, equals wx (r x d); and the distribution cost, DC, equals WX (R x D). Since the rates on raw materials and finished products are not made in proportion to distance, the critical elements in the formula are the relative weights of the raw materials and finished products w/W, and the relative rates on the raw materials and on the finished product r-R. The following symbols may be used:

- r = rate on raw materials per ton-mile,
- r^1 = rate on raw materials per ton, including terminal and special services,
- c = special or terminal charges applicable on raw materials,

d = distance from point of origin of raw materials to manufacturing point in miles,

w = weight of raw material in tons,

ac = assembly costs, the total charges on raw materials or supplies from points of origin to manufacturing point.

R = rate on finished product per ton-mile,

R^1 = rate on finished product per ton, including special or terminal services,

C = special or terminal charges applicable on finished products,

D = distance from manufacturing point to market in miles,

W = weight of finished product in tons,

DC = distribution cost, the total charges on finished product from manufacturing point to market.

The formula may be simplified by considering only the rates on raw materials and finished products which to varying degrees will reflect distance, and assuming that terminal and special charges applicable are included. Our formula, therefore, is: $ac = w \cdot r^1$ or $w \cdot (r \cdot d + c)$, and $DC = W \cdot R^1$ or $W \cdot (R \cdot D + C)$.

The term "rate" as here used, designated by the symbols r^1 and R^1, includes the total transportation charges, line-haul rate, special and terminal charges, loading, unloading, switching and handling charges or costs. When the ratio between w and W is greater than the ratio between r and R, industries are attracted toward the sources of production of the raw materials. If, for example, the rate on the raw material is 50c. per ton, and the manufacturing process requires four tons of raw materials to produce a ton of finished product, and the rate on the finished product is $1.50 per ton, the formula would produce the following result:

ac = w (4 tons) · r (50c. per ton) = $2.00

DC = W (1 ton) · R ($1.50 per ton) = $1.50

ac > DC

Therefore the industry would tend to be attracted toward the point of production of the raw materials. If the ratio between w and W is 2 tons to 1 ton, the formula would produce this result:

ac = w (2 tons) · r (50c. per ton) = $1.00

DC = W (1 ton) · R ($1.50 per ton) = $1.50

ac < DC

This result would tend to attract the industry toward the market until a point of indifference is reached. This occurs when ac = DC. This point cannot be measured precisely in miles, because freight rates are not made on all commodities nor upon the same commodity upon a uniform ton-mile basis. This is not significant because it is not distance in miles but "distance in terms of rate" which is of significance in industrial location.

Freight Rates in Distribution

In the distribution of goods, whether they be industrial goods for use in industry or consumer goods for consumption or use, the considerations are identical except that the factor of the relative weight of the goods is not material, unless there are packaging or repackaging operations which will alter the shipping weights into and out of the distributing points. Relatively low rates on the goods from producing points to distribution points will draw distributing industries toward the markets they serve; while the distributors will be attracted toward the points of manufacture by relatively high rates from the distribution points to markets. The force of inbound and outbound freight rates upon the locations of industries and distribution points is complicated by the use of warehouses as storage facilities for goods in various stages of production or distribution. The same factors of rate consideration are operative to influence the location of these warehouses as in the location of plants, branch factories, and distribution facilities.

If carload or truckload freight rates are used to bring the products to the distribution point, and less-than-carload or less-than-truckload rates are used to move the products from the distribution points to market, carload and truckload rates being lower per ton-mile than l.c.l. or l.t.l rates, the locations of distribution points will be closer to the markets than they would be if the same types of rates were used inbound and outbound. These locations, in turn, are affected by the availability of mixed carload or mixed truckload freight rates in which l.c.l. or l.t.l. shipments can be consolidated or pooled.

The Ultimate Objective in Freight Rates in Marketing

The relative freight rates upon raw materials and supplies, of significance in the location of manufacturing, processing and distributing industries, are of less importance than the total costs of assembly and distribution. The transportation costs of marketing goods may be stated in terms of the formula used previously, as follows:

TMC, (transportation costs of marketing) = ac + DC = $w \cdot r^1 + W \cdot R^1 = w \cdot (r \cdot d + c) + W \cdot (R \cdot D + C)$.

The producers, manufacturers or distributors have freight-rate advantages in any particular market to the extent that the transportation costs of marketing of one are less than those of his competitors.

If market prices are based upon the prices quoted by a producer, manufacturer or distributor having the lowest freight rate to the market, then competitive industries, where higher rates are applicable, will be compelled to absorb the difference in freight rates in order to meet the price at which the goods are offered in the markets. If the rate from producing or distribution point A to market B is $2.00 per ton, and the rate from producing or distributing point C is $2.25 per ton, and from D is $2.35 per ton, sellers located at B will be obliged to absorb 25c. per ton and those located at D will be faced with the absorption of 35c. per ton, if they wish to sell their goods in this market.

If, however, the market prices at B are based upon the plant price at D plus freight charges from D to B of $2.35 per ton, then producers, manufacturers or dis-

tributors at A have a rate advantage of 35c. per ton, and those at C one of 10c. per ton.

The ability to absorb a freight rate disadvantage is contingent upon advantages in cost of production, or in the assembly costs of raw materials and supplies. Mill B in Fig. 1 is able to sell goods at an advantage in the market shown in this hypothetical case, despite a rate disadvantage on its finished product of $2.00 per ton, by having advantages, as compared with mill A, of $3.10 per ton on coal, and 30c. per ton on stone, although it has a rate disadvantage of 80c. per ton on ore.

Selection of Transportation Routes and Carriers

The struggle of producers, manufacturers and distributors for markets causes continual changes in freight rates and the search for carriers and services which will give or preserve freight rate advantages, or offset disadvantages. Freight rate structures are of necessity dynamic, not static, changing with changes in industry and in marketing.

Shippers have, under normal conditions, the right to select the types of carriers to be used and the particular carriers of the various types. The selection of types of services and routes is, for this reason, one of the most important aspects of industrial and commercial traffic management. The types of freight carrier services available for selection include all rail, standard or differential; rail-water; all water, intercoastal, coastwise, Great Lakes, or inland waterway; motor freight; water-motor; railway express; air-freight or cargo; air express, or air and rail express; petroleum pipe line; freight forwarder or pool car service; and parcel post. Choice may also be made between the services of common or contract carriers, or private operation of transportation facilities. The services may be arranged through transportation brokers.

All these types of carriers within the areas of their service effectiveness compete with each other in making freight rates to attract or retain traffic.

LETTERS

(*Concluded from Page* 12)

distribution of a product such as yours even for non-emergency uses.

It will surprise me if air freight rates go much lower than they now are for some time. I believe that the bottom has been reached until more efficient cargo planes are developed and put into use. Therefore the governing factor in air shipping will still be the advantage of speed and the premium price that will be asked for this speed is really very little considering 8th day delivery by rail from east to west coast, and overnight delivery by air. There are also other advantages that will arise out of speed which will make the air rate more closely comparable to the rail even tho there may be an apparent spread between them.

I should like very much to have your permission to reproduce your interesting letter together with this reply in an early issue of DISTRIBUTION AGE.

Mr. Bartel's Reply to Dr. Frederick:

Thanks for your most enlightening letter commenting on rate structure and generally summarizing the air-freight field.

The writer is indeed pleased with your plans to utilize his letter in a near future issue of DISTRIBUTION AGE and can assure you it is an honor to grant permission. As an afterthought, if publication space warrants, perhaps you may desire to use the enclosed photographic print taken of the U. S. Army Transports loading our Units Jan. 10, 1947.

Since writing you, noticed an article in the July 19 issue of *Business Week* announcing that Slick Airways, Inc., had reduced their rates to 12¾c. per ton mile, instigating a new ratio of 15 to 25 percent higher rate than charged for rail express. By the same token, the other 19 scheduled airlines, all freight carriers, announced 25 percent reductions in rates or an average of 20c. per ton mile, 7c. more than charged by Slick. This smacks of further controversial issues between the airlines which may establish rates within reach of heavy shipping manufacturers, sooner than we think.

We are looking forward to your further articles on the subject. We shall be glad to note any reactions my letter draws from your reading public.

Keystone Container

Sir:

I have read with great interest Mr. Cleveland's article appearing in the July issue of DISTRIBUTION AGE entitled "Transportation . . . Its World-Wide Problems." In passing, he speaks of earlier uses of lift vans, and in so doing, touches on a subject with which we are quite familiar. For almost 20 years we have operated a fleet of some 80 lift vans which are used for exporting the household effects of members of the Diplomatic Corps and representatives of many large American corporations with foreign representatives.

Our vans have been built for us by the American Car & Foundry Co. and the largest size is about 2/3 of the size of the Keystone container. Ten of our vans are about 1/2 size of the Keystone container. All save 10 of our vans are made of steel, with the balance of aluminum.

We should be most interested if we could be furnished with the name of the manufacturer of the Keystone container and any information whatsoever that Mr. Cleveland has relative to its construction, measurements, weight and cost.

—Philip Larner Gore, Vice President, Security Storage Company, Washington, D. C.

Editor's Note: Mr. Cleveland's reply follows:

The photograph of the Keystone container came from the Cincinnati Car Corp., Winton Place, Cincinnati, O. These are being used by the National Fitch Corp., New York City, in their terminal operations in Cincinnati.

These articles of mine have been written as a matter of public service and with the hope that something in the future will develop.

To Study U. S. Methods

Sir:

I have been informed that your journal is in possession of valuable material on distributional problems.

Such problems are very much in the limelight here just now, as will be readily understood, when I inform you that the Norwegian Government has recently appointed a committee to investigate the efficiency of our distributional system. For this reason it has been found extremely desirable that a Norwegian delegation should study corresponding problems in the United States.

As president of the Norwegian Wholesale Merchants' Assn. (Norges Grossistforbund), I beg to introduce to you the members of this delegation, viz.:

Sverre Fonstelien, manager of the Research Dept. of Norges Grossistforbund.

Kare Framholt, of Kloverhuset, Ltd., Bergen, (Wholesale Drygoods Merchants and Department Store).

Olav Skogen, secretary of abovementioned committee.

All of them are graduates from the Bergen University for Higher Commercial Education (Norges Handelshoyskole).

I should be very grateful if you would kindly help the delegation with material that you may dispose, relevant to their mission, and further if you would introduce them to other institutions or persons, that might assist them.

I may perhaps add, that Norwegian trade organizations hope, through our delegates, to obtain material and impressions of considerable value for the case of individual enterprise. After his return to Norway, Mr. Fonstelien intends to make a report, which will be sent to you.

The delegation will arrive in New York probably in the course of Sept. 1947 and will stay in your country 8 or 10 weeks.

—Arth. H. Norill, President, Norges Grossistforbund, Oslo, Norway.

ARMY TRANSPORT LOADING PRODUCTS OF RIC-WIL CO.

Books and Catalogs

INTERSTATE COMMERCE AND TRAFFIC LAW, edited by G. Lloyd Wilson, 677-p. selection of leading cases and guiding principles in traffic and transportation management, administration and law. $5.50. Prentice-Hall, Inc., 70 Fifth Ave., New York City.

HOW TO SOLVE COMMUNICATIONS PROBLEMS, 8-p brochure showing various interoffice communications systems. Executone, Inc., 415 Lexington Ave., New York City 17.

Electric Industrial Truck Developments

"About the turn of the century the first electric industrial truck appeared on the scene," B. I. Ulinski, chief engineer, Automatic Transportation Co., Chicago, told a recent gathering of mechanical engineers in Pittsburgh. "But," he said, "it was not until the second world war that industry in general fully grasped the importance of material handling—the new revolution which would reduce costs and increase efficiency both in production and distribution. Today's electric trucks can scarcely be recognized as the lineal descendants of the first trucks which, although they did a job and ushered in a new industrial concept, were crude and bulky by today's standards. Similarly, the trucks on today's drawing boards for tomorrow's work will incorporate the advancements which users are now discovering they need or desire.

Keeping pace with the interest shown by industry, new developments in electric industrial trucks have been more numerous and more significant during the period since the close of the war than during any similar period of time in history. Designs were frozen, of course, during the war with the exception of such changes as were demanded by government needs. Since that time, almost all truck manufacturers have brought out new post-war models incorporating operational features unheard of five years ago. Chiefly, most effort is being devoted toward making these new trucks better in two respects—versatility and efficiency. On many new electric trucks, products of wartime research and experience, are being applied. A good illustration is the high-pressure hydraulic system for lift and other controls. High pressure systems are developments originally applied to war-time aircraft. A very significant new application to modern truck electrical systems, is to be found in the controller which incorporates the best in planned sequence control. The operator merely selects a speed by depressing the foot pedal to the correct position. The controller then starts the truck in low speed and automatically accelerates to the faster speed selected. The application prevents jerky starting, reduces wear on tires, and reduces the peak load on the electrical system by two-thirds. The producers of electric trucks are completely sensitive to the needs of industry. For example, new models of trucks have been built with a lower mast for work requiring the truck to operate inside motor trucks and semi-trailers. On the opposite extreme, other special model trucks are reaching higher than ever before in the history of materials handling—For example, trucks are offered with a lift of 220 in. for special operations. In addition to new developments in basic truck design, most electric truck manufacturers are devoting more and more attention to developing special attachments—either to replace or complement the conventional forks or platforms—to enable their trucks to perform specialized jobs. These attachments are usually designed to be installed on trucks of any size or type, depending upon the job to be done.

the matter. In other words, how can we attain greater efficiency, at lower cost, in the loading of our shipments? When we get the answer the issue will be solved."

Nodding assent, Gordon left for other parts of the factory. Jack lingered to watch the work of the loading gangs. He was puzzled as he turned over in his mind the various factors involved. The electric lift truck was delivering loaded pallets to the freight cars at regular intervals. The loading gangs piled the cases in the freight cars in an efficient manner. Despite all this the loading of the two cars appeared to lag as Gordon had mentioned. However, during the morning spell the work had gone along quite smoothly. What could be wrong?

Mentally checking, Jack again reviewed the different angles. A gravity conveyor carried the cases of finished products from the end of the production line on the second floor to the shipping room on the first floor. The cases were lifted from the conveyor by two men and piled on pallets. As each pallet was loaded with the required quantity of cases an electric lift truck removed it either to the stock room for storage, or directly to a freight car. The production volume was sufficient to provide for the daily loading of two freight cars, and that number of cars was loaded and shipped every weekday. Two separate gangs, each consisting of five men, loaded the cars. The experiment of using fewer men in each gang had been tried, but rejected because the daily shipping program could not be met.

The production department operated on two distinct shifts of eight hours each, whereas the two loading gangs worked only during the day-time on a single eight-hour shift. Under this procedure the two loading gangs every morning were handling pallets from the stock room and also from the production line. In the afternoons, having cleared out the stock room, they were loading only from the production line. This created an uneven flow for loading, taking the entire day-time cycle as a whole.

At this point Jack broke off his deliberations. "That's it," was the thought which flashed within his mind. He turned. Swiftly striding through the factory he dashed into the office of Sidney Bland, the company's production manager, and shouted: "Sid, I've got it! I've got it!"

Looking up from his desk in surprise, and with some annoyance, Bland inquired: "What's all the excitement? What do you mean 'you have got?' Seems to me your use of grammar could be improved."

"Grammar be hanged," cried McCormack. "I'm telling you I believe we have finally found a way by which we can definitely reduce our costs of materials handling in the movement of goods to freight cars."

"How?" demanded Bland.

"By extending the conveyor, changing the loading gang shifts, and doing away with the use of pallets except for the handling of any excess of production over shipping demands."

"Perhaps you are on the right track concerning the conveyor and the adjustment in labor gang shifts. As to discontinuing our general use of the pallets you are wrong. Palletizing is the latest thing," declared Bland.

"So's your Aunt Minnie," exclaimed McCormack, "but that's no reason to use pallets if something better is available."

"In theory your statement is correct," said Bland, "but it will take more than a s s e r t i o n s to change my mind as to our not using pallets."

"I didn't suggest that we entirely discard the pallets," insisted McCormack. "I do say, though, that we should use them only in instances where our production exceeds our shipping requirements on any given day."

"'Well, I'll consider your suggestion," conceded Bland. "Maybe it has merit. Be that as it may, go ahead and arrange for a conference with the big boss and the others."

Jack strolled over to the office of Malcolm Bruce, president of the company. Learning from Bruce's secretary that he was alone, Jack entered. Bruce greeted him with a smile and asked: "What's the cause of that broad grin on your face? Have you licked the materials handling question?"

"I think so," McCormack answered, "but I won't bother you with details right now. In the near future can you get together with the other officials and interested department heads?"

"I'll say I can," beamed Bruce as he signaled for his secretary. He instructed her to send out word that a meeting would be held in the conference room at ten o'clock the next morning.

At the appointed hour on the following day the president, the general manager, the production manager, the shipping superintendent, and Jack were seated at the table in the conference room. Perry Wright, the treasurer, and David Patterson, the comptroller, also were present.

When Bruce called the gathering to order, he said: "As I see it, the margin between economy of operation and wasteful performance is frequently very slight. Use of proper systems and equipment can swing the balance from high to low shipping cost and from low to high shipping output." Glancing at Jack, he continued: "McCormack is of the opinion that a few changes in our methods will bring about the improvement we have been seeking. Now go ahead with your explanation, Jack."

McCormack outlined his views on making changes by elaborating on the statement he had previously made to Bland. He pointed to the desirability of having the loading gang shifts adjusted to those of the production department, and lengthening the conveyor and extending it into the freight cars, as well as eliminating the use of pallets except when production schedules required placing cases of products in stock.

Bland then spoke up. "Since my talk with Jack I have come to the conclusion that his recommendation should be a d o p t e d.

With our existing routine we actually have a double handling of every package of our product. The cases have to be lifted from the conveyor to the pallets. Then the pallets are moved to the freight cars by our electric lift trucks. Finally, the cases have to be lifted from the pallets and piled in the freight cars."

"It means," interrupted Norman, "that if we extend the conveyor on into the freight cars we can load direct with one handling instead of two. Also by having a loading gang working along with each of the production department shifts we can break up the current bottle-neck. I'm for the change."

Following a few additional remarks Bruce gave his final approval to the new plan.

"For once we won't have to do a lot of figuring to determine the estimated reduction in handling costs," commented Wright. "It's obvious that we shall save money."

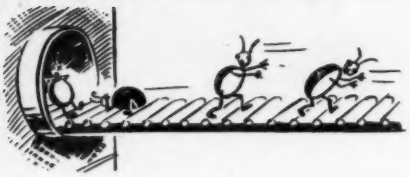
"Yes," g r u m b l e d Patterson. "On the other hand, with such a simple solution why didn't someone discover the answer without our having to bring in McCormack and add him to our staff?"

"Because," exploded B l a n d, "each of us is busily engaged in the duties pertaining to our particular department. None of us has the time to make any extensive special study without assistance. That's why McCormack was hired to analyze our traffic and materials handling needs. Work of that sort is a function of a traffic department."

"Don't forget," laughed McCormack, "that in carrying on this type of project the traffic department cooperates with a materials handling equipment engineer."

Headaches Ahead . . ? Last year, according to the National Wholesale Druggists' Assn., drug store sales totaled $3.594 billion. A 10-year projection of the potential drug market indicates that by 1957, sales will reach $3.764 billion.

Sounds incredible, until you read some newspaper headlines about the state of the world. Then you realize that most of the increase will be taken care of by additional sales of aspirin tablets.

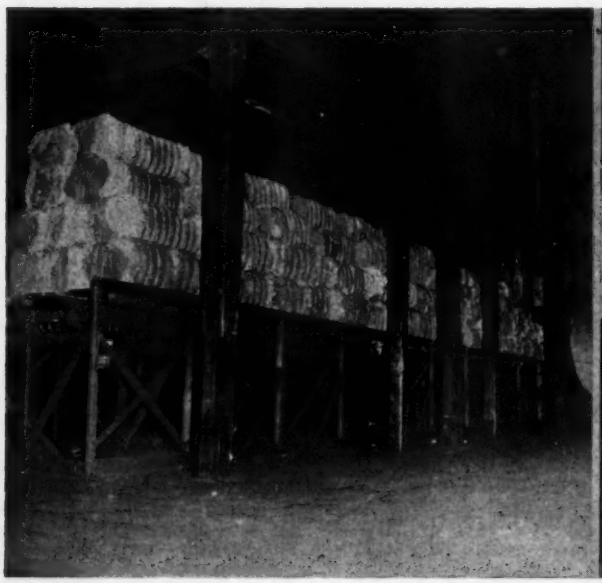


DEATH

(Fig. 1) A fork truck with crane boom attachment unloads box car and loads a pallet for cotton fumigation.

(Fig. 2) A pallet load consisting of 10 bales of cotton being fed onto the conveyor prior to fumigation.

(Fig. 3) A slug of 100 bales of imported cotton moving into the vacuum fumigation tank as a unit.



(Fig. 4) A view of the entrance to the vacuum fumigation tank . . . One hundred bales is quite a mouthful.

ON WHEELS

By WILLIAM C. CROSBY

Vice President
Coughlin-Crosby Corp.

A new mechanized method of mechanically handling imported cotton during fumigation has resulted in streamlining a formerly manual operation with attendant important time and cost savings.

ANY pests which are in the imported cotton handled by Wiggin Terminals, Inc. of Boston are treated to a streamlined killing in which the bales are palletized and with the use of fork trucks are rolled through a vacuum fumigation tank on a heavy duty roller conveyor. This pioneer operation originated and was developed by C. J. Grimley, General Manager, Wiggin Terminals, with engineers of Coughlin-Crosby Corp., materials handling consultants of New York. Experimentation was heartily encouraged by Sherman L. Whipple, President, Wiggin Terminals, who realized at once that good things do not come easily. The conveyor was manufactured and installed by the Mathews Conveyor Co.

Until it was functioning smoothly, the installation caused a great deal of controversial speculation as there were many who believed various operational difficulties were insurmountable. However, all of the obstacles were overcome through diagnosis and testing and an efficient coordinated operation was eventually developed.

Formerly the bales were unloaded manually, and were lifted on a chain fall by a hook which travelled on an overhead trolley, thanks to the brawn of the workmen. As the hooks were spaced to accommodate the large Egyptian bales, significant areas of the tank around the smaller Chinese and Indian bales were filled with fumigating gas with no benefit to the company. The cotton was removed from the tank on the same hooks and transferred on hand trucks to storage or shipment. The handling was hazardous to the workmen because the bales are unwieldy and heavy—some weigh as much as 750 lbs.

In the new operation, as soon as a consignment of cotton arrives, it is made up into pallet loads on a 4 ft. x 6 ft. pallet by a light capacity fork truck with a crane boom attachment. Each pallet carries a two-ton load which rises to a height of about seven ft. in a pyramid shape. This fits the rounded top of the cylindrical tank without wasting space, and has increased the capacity from a maximum of 50 bales, regardless of size, to a full 22 tons. This is the equivalent of 55 large bales or 100 small bales, or, expressed percentagewise, 10 to 100 percent.

The pallets are loaded by fork trucks onto the roller conveyor from which a "cartridge" of 11 pallet loads is injected into the fumigation chamber much as a cartridge slides into a rifle chamber, and with little more lost space. Three of these eleven pallet cartridges are on this 170 ft. long roller conveyor at all times: one on the approach to the tank, one in the chamber undergoing fumigation, and one on the exit section of the conveyor.

There is a lot of mechanical ac-

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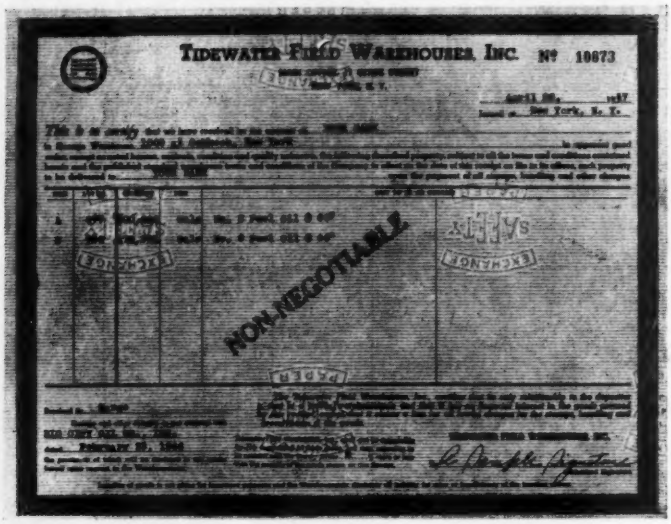
(Fig. 5) Here is a pallet load of cotton being removed from the conveyor after the fumigation operation.

FIELD WAREHOUSING CAN HELP



• in Inventory Financing

• in Inventory Control

Many firms find field warehousing an invaluable aid in converting frozen assets into working capital.

By JOHN J. McMACKIN

Tidewater Field Warehouses, Inc.

ONE of the most practical and inexpensive methods of obtaining both a financing system and an inventory control system for a business is through the medium of field warehousing. Let us see how this practice can help in both these categories.

A SYSTEM OF FINANCING. Many business concerns by the very nature of their particular industry are forced to carry inventories of considerable size and often variety. This creates a problem in the tie-up of working capital needed for other important uses. Some concerns find it necessary to seek outside sources for loans to carry on their business activities, frequently at high interest rates. In most cases, assistance at reasonable cost can be obtained through the medium of field warehousing.

The average businessman is familiar with public warehousing. When it becomes necessary to seek a place to store merchandise, a public warehouseman is consulted and arrangements are made to use his facilities. After the goods have been received by the warehouseman, a receipt is prepared acknowledging that the merchandise specified thereon is held in storage for the account of the depositor or bearer. It is well known by most businessmen that a warehouse receipt from a reputable warehouseman covering staple commodities is readily acceptable as bank collateral for a loan. However, not too many businessmen are aware that inventory stored on their own premises through the use of field warehousing can become collateral for bank loans. Instead of transferring the merchandise from its present location on the premises of a business concern to a public warehouse to obtain a receipt for loan purposes, the identical service can, in most cases, be established where the merchandise is deposited originally.

An agreement is entered into with a reputable field warehouse concern whereby the premises where the merchandise in question is stored are leased to the warehouseman and a warehouse operation is set up. Customarily, to save any additional cost for labor and also the better to supervise the warehouse, two or more employees of the company owning the goods are used as warehousemen. After a careful selection of the individuals best suited to the task, they are dropped from the payrolls of the firm and immediately picked up by the warehouseman. After their appointment they are bonded and trained in their new duties. Since their warehouse obligations will not usually take up their entire work day, it is the customary practice of the warehouseman to permit them to assist their previous employer when their warehouse duties are completed. In this manner, very little if any cost is added for labor.

Warehouse receipts are then prepared, covering the goods on hand, and issued to a bank as collateral for a loan of anywhere from 50 to 90 percent of the value of the goods deposited. Usually a demand note is signed by the borrower, which is reduced as the goods are withdrawn from the warehouse. Field warehousing is a fluid credit system that can be of tremendous help to the user at a surprisingly low cost. Often trade discounts more than pay for it.

A SYSTEM OF CONTROL. A check method to avoid inventory losses is usually a costly procedure, yet shortages do take place now and again. Hard-to-get manufactured

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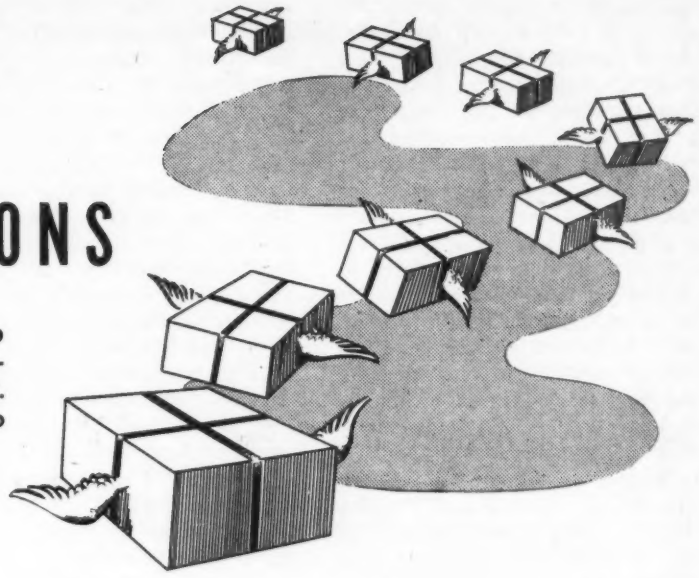
BASIC AIR CARGO CONSIDERATIONS



Recent air cargo operations point up the many differences between passenger and freight air traffic . . . Mr. Frederick discusses eight basic air cargo considerations.

By JOHN H. FREDERICK

Air Cargo Consultant

AT THIS writing it is still uncertain whether the Civil Aeronautics Board will grant certificates of convenience and necessity to exclusive air cargo carriers or whether the further development of this field will be left to the presently certificated airlines. Whatever happens, we have now had sufficient cargo operations both by the contract and non-certificated operators, and by the airlines, to give us a more thorough understanding of the basic considerations of successful air cargo transportation. These may be summarized as follows:

1. Air cargo will move in the quantity forseeable in the future only over relatively long distances, probably 500 mi. or more. Slick Airways' average length of haul varied from 983 mi. in Mar., 1946 to 2,050 mi. in June of the same year. American Airlines Contract Division experienced an average haul of approximately 990 mi. in Oct., 1946. Other non-certificated and contract carriers averaged hauls in excess of 500 mi. according to their testimony at the Air Freight hearings before the CAB. American Airlines carried 64.1 percent of the air freight using its common carrier schedules less than 800 mi. in Aug., 1946, the balance exceeding that mileage. However, when one compares these hauls with surface transportation, it becomes obvious what is meant by "long haul" transportation by air. For example, in 1940 the average hauls of overland surface carriers were:

	mi.
Rail carload freight	351
Forwarder (designed to attract long-haul traffic)	844
Rail l.c.l. freight	476
Truck	236
Rail Express	517
Parcel Post	437

At the higher rates which air transportation must charge, the plane will not be able to compete with rail and motor transport on distances where such surface carriers can provide overnight service. It follows, therefore, that the short, high density passenger routes which have proven so profitable to the airlines, such as Boston-New York, New York-Washington, Chicago-St. Louis and the like, will not be as profitable for air cargo. The airplane reaches its maximum utility for air cargo on coast-to-coast and New York to Florida hauls, where its speed produces the important time savings which are its greatest contribution to efficient transportation.

2. There will always be a certain amount of seasonality in air cargo transportation. Many, perhaps the majority, of the perishables which demand and deserve air transportation are seasonal in character. Oysters move only in the "R" months, fruits and vegetables only when crops ripen and are ready for market, flowers in their seasons, and so on. Of course tomatoes, for example, may move the year round, but tomatoes will move to market from different places during the year as various crops ripen and are harvested. This creates the interesting situation that producing centers requiring a high degree of regular, scheduled air transportation at the peaks of their producing seasons do not require any air transportation at all, or so little as to make it unnecessary to render them service, during the remainder of the year. Consequently any air freight operation must be flexible enough so that it may utilize its equipment throughout the year; perhaps flying a variable pattern of routes and schedules as demand dictates.

3. There will always be a directional unbalance of flow for air cargo. The non-certificated carriers in particular have experienced marked unbalances in the directional flow of traffic. It has been found that westbound traffic exceeds eastbound traffic and that southbound exceeds northbound. Such unbalance is, however, nothing new, as it has long existed in the fields of rail, motor and water transportation. Perishable air cargo, for example, has a one directional flow in every instance.

4. If the plane is to achieve its maximum usefulness as a cargo transport (and upon its doing so

depends the very existence of the air cargo industry), it has to go where things are and take them where people are. The oysterman in Hampton or the vegetable grower in Salinas is not always satisfied by being told that air service is available at Norfolk or Los Angeles. Such shippers do not want a long truck or rail haul from dock or farm to airport. If perishable products are to fly they must fly immediately, not after hours have been spent in getting them to the point of departure. Also, if the air transportation available cannot provide single plane service to ultimate markets a shipper of perishables is not interested at all. The delays, damage and expense involved in transferring cargo from one plane to another will almost always offset the advantages inherent in air transportation. This means that if we are ever to have large-scale use of air transportation for perishable shipments, interchange of equipment between presently certificated airlines or strictly air cargo lines with direct services are essential. A soundly conceived air cargo system must, therefore, be radically different from a sound passenger system, because each must be planned to accomplish an entirely different type of service.

5. "Scheduled" service for air cargo will for a long time mean something very different from scheduled passenger service. To the airline passenger, hours and minutes are of consequence. The time of departure, the time in flight, the time of arrival at destination all guide him in his selection of carrier and particular flight. To the air cargo shipper, on the other hand, "scheduled service" does not mean split-second timing; it means regularity and dependability of service. The shipper in Florida has no concern with the minute that a northbound freight plane departs or arrives. If he is promised next morning delivery in New York or Boston or Chicago, he has little reason to care just when the plane departs or arrives, as long as the service is otherwise satisfactory. Where the airplane goes, what route it follows, what stops it makes are of absolutely no concern to the shipper. Air cargo carriers have a flexibility in their operations and a margin for irregularity and schedule deviation that would not be possible were they transporting passengers.

6. No air cargo carrier can as yet depend for livelihood on one or two types of traffic. It has been said that air transportation, in many of its characteristics, is akin to motor transportation and that because it has been found that motor carriers may be sensibly and economically classified and restricted to the carriage of particular commodities, the same is true of the air carriers. This is not so, and in the foreseeable future air cargo carriers must be permitted to carry a variety of traffic if their service is to be economically sound. This means that each cargo carrier must have access to the sources and to the markets of the products and commodities which are most susceptible to air transportation.

7. Passenger routes sometimes furnish no clue whatsoever to the "community of interest" which might justify a cargo route. This may well be one of the reasons why the airlines, certificated on a strictly passenger and mail basis, have found it difficult at times to develop air cargo business. For example, the *people* of Hartford may have their greatest community of interest with New York City and their greatest demand for transportation service may lie in that direction. Yet the *products* of Hartford, such as airplane parts, may require transportation to aircraft factories in the midwest and on the west coast. So also, with a fruit and vegetable producing area in California or Florida. The need of such an area for passenger air transportation to Detroit, Chicago and New York may be virtually nil, yet those cities may represent the greatest markets for its produce.

8. Since air cargo moves only on long hauls and since the shipper, while he may be concerned with selecting the particular air carrier, is not interested in the routing to be followed, an air cargo operator must be permitted a very great deal of flexibility. The shipper of California peas or other perishables to the eastern market does not care whether his shipment reaches New York by way of Fort Worth, Kansas City, Denver or a great circle course. Hence an air cargo operation should not be restricted to linear courses, defined by intermediate points, but should be authorized to fly between terminals over whatever airway or course offers the best flying conditions, just as do the airlines in their non-stop passenger operations between points like New York and Chicago.

Lowers Food Prices

Here is the Food-O-Mat in a Grand Union supermarket which, according to Lansing P. Shields, president, the Grand Union Co., lowers food prices by displaying over 1700 grocery items in a single unit. The Food-O-Mat has proved so satisfactory in tests that it will be installed in every new Grand Union supermarket, as well as in many other stores. Slanting shelves keep cans, bottles and jars always at the shopper's fingertips.

MATERIALS HANDLING DEPARTMENTS—(*Continued from Page* 45)

Frequently the moving or relocating of a machine is all that is needed to effect savings in handling. However, let us assume that the rough casting is brought in from an outside foundry. If possible, it should be delivered in pallet unit loads, so that it can be unloaded from the trucks, stored in the plant yard, and reclaimed from the plant yard without individual handling of the casting. The unit load is received, inventoried, and works through production as a unit load. In this way it can be checked in quickly, inventoried quickly in storage, and quickly requisitioned from storage to the beginning of the production line.

After the pallet load is brought to the production line, the method of handling needs close analysis, study, and coordination among all parties concerned; because the sequence of operation, the type of equipment that will be used, the building in which the operation is taking place all have a direct bearing on what type of materials handling system will best fit the need.

Let us assume that we are dealing with straight line production, rather than a departmentalized cycle. Therefore, it is logical to make a straight line system, consisting of roller conveyors, belt conveyors and overhead trolley conveyors. The roller conveyor is used for passing the casting from one machine to another, allowing a small production bank to accumulate on the rollers between machine operations, and also to eliminate the necessity of the machine operator's stooping to the floor to pick up the rough casting, and put down the finished casting. If the casting is such that it cannot be run on a roller conveyor, then the belt conveyor is used in short lengths.

For the long movements between operations, over aisles or between buildings, or through the degreasing operations or spray paint booths, overhead trolley conveyors are used, with the proper types of attachments for holding the castings in the correct position for degreasing or painting. At the end of the line, the unit packages to be stored or shipped to another plant are again accumulated on a pallet for unit load shipments or storage.

Now let us assume this same operation is being done by the cycle method of production, the running of machines with a certain quantity of the same casting. This frequently leads to considerably more handling, but it keeps the machine more productive. If the production cost and setting up time are less than the cost of handling, then it is well to do it this way, but analysis will sometimes show that the cost of handling far exceeds the savings that are made by production or cycle runs of machines. However, if it is a cycle run, and the castings again move in sequence from operation to operation, then it is wise to

(*Continued on Page* 67)

People in Distribution

N. K. G. Tholand has been elected first vice president and treasurer, General Steel Warehouse Co., Inc. **Y. A. Hogsten** was elected second vice president and assistant treasurer; and **G. J. Zimmerman** was appointed sales manager.

Canadian Warehousemen's Assn., has elected the following: **Walter Naylor,** president, **George A. Keates,** vice president, **William B. Cowan,** treasurer. Directors are: **F. E. Daniels, W. Dennis Day, W. G. Heaney, David Milliken, Alex McNeill, C. R. Johnson, Mrs. Howard W. Parsons,** and **J. R. Williams.**

Harry R. Brinkman, assistant plant manager, Bayway Terminal Corp., has been placed in charge of a recently inaugurated open storage area located adjacent to the Terminal property in the Bayway Section of New York Harbor.

A. E. Hegewisch of A. E. Hegewisch, Inc., freight forwarders, was elected president of International House at a meeting of the Board of Directors, succeeding **William G. Zetzmann. William H. Trauth,** Gulf manager of the Alcoa S. S. Co., Inc., was named first vice president. Others elected were **Wilmer Hayward,** Standard Export Lumber Co., Ltd., **Crawford H. Ellis,** Pan-American Life Insurance Co., and **Theodore Brent,** president, Mississippi Shipping Co., Inc., vice presidents; **R. S. Hecht,** investment banker and chairman of the board of Mississippi Shipping Co., Inc., chairman of the board; **Kenneth C. Barranger,** attorney, and **B. C. Brown,** Brown's Velvet Ice Cream Co., treasurer.

Charles P. Graddick, former air cargo director for United Airlines and one of aviation's earliest proponents of airfreight and air mail, was appointed to the management staff of Slick Airways, Inc.

R. H. Burck, southern region traffic manager, Braniff International Airways, has been appointed to the newly created position of coordinator of state affairs for the airline.

L. A. Cholot, formerly express traffic manager, Pan American World Airways, has been appointed vice president.

Willis G. Lipscomb was elected vice president, traffic and sales for Pan American Airways. This position was recently held by **V. E. Chenea,** who has been ordered by his physician to part-time duty.

Ralph M. Heinan has been promoted to the newly created post of director of transportation, National Enameling and Stamping Co. Mr. Heinan has been assistant traffic manager of the NESCO organization for the past ten years.

J. M. Johnson, a veteran of nearly twenty years in the electric truck field, has been appointed assistant sales manager of Automatic Transportation Co.

Pope and Talbot, Inc. has announced the following changes in executive personnel: **E. N. W. Hunter,** acting general manager, S. S. Div., and assistant to the president, will be relieved of his duties concerning the S. S. Div., and will devote his entire attention to the duties of assistant to the president. **Gerald A. Dundon,** vice president, and Atlantic Coast manager of the S. S. Div., will be transferred to San Francisco, and will assume the duties of vice president, and general manager of the S. S. Div., **W. Watkinson,** general freight agent, Atlantic Coast, will assume the duties of Atlantic Coast manager of the S. S. Div.

Alfred F. Hall has been appointed superintendent, vehicle division, Railway Express Agency, New York City, succeeding **August Wilkoc,** who is retiring after 45 years of service with the company.

Secretary of State George C. Marshall has been elected to honorary membership in the American Society of Mechanical Engineers, it was announced by **Clarence E. Davies,** secretary of the society.

New officers, Society of Automotive Engineers, Cleveland Section, are: Chairman, **Robert Cass,** assistant to the president, The White Motor Co.; vice chairman, **Norman Herotz,** Thompson Products, Inc.; vice chairman for the Akron-Canton district, **Leland W. Fox,** Firestone Tire & Rubber Co.; vice chairman in charge of aeronautical activity, **Addison M. Rothrock,** National Advisory Committee for Aeronautics; vice chairman in charge of truck and bus activity, **Virgil C. Speece,** The White Motor Co.; vice chairman in charge of transportation and maintenance activity, **O. W. Smith,** Socony-Vacuum Oil Co.; treasurer, **R. F. Steeneck,** Fafnir Bearing Co.; and secretary, **A. E. Wilson,** Keal-Kennedy Mfg. Co.

Adolph W. Engstrom, former president, Kenworth Motor Truck Corp., Seattle, and more recently works manager of International Harvester Co.'s Emeryville, Cal., plant, was appointed executive vice president and general manager of Western Metalcraft, Inc. of Olympia. (Haskell).

New purchasing agent for the Hyster Co. is **Paul Rhodes.**

Al Edelschick has been appointed field sales manager, Inkograph Co.

E. L. Harrig, was named national general service manager for the Chevrolet Motor Div., **I. W. Thompson,** a veteran Chevrolet parts and accessories specialist, was appointed general parts and accessories manager for the division.

James R. Weaver, works manager of the East Springfield Works, Westinghouse Electric Corp., has been appointed a director of the Wico Electric Co., West Springfield, Mass.

Hotpoint, Inc., board of directors has elected **B. E. Schroeder** vice president of manufacturing. **Patrick W. Ryan** has been promoted to general superintendent, and **M. E. Maurer** has been promoted to general manufacturing engineer.

Thomas B. Moule, formerly assistant director of sales in the Los Angeles office of the Plomb Tool Co., has been assigned the responsibility of supervising Plomb's expanded sales organization in the eastern half of the United States. **Jack G. Allen** has joined the Plomb sales staff to take over the duties previously handled by Mr. Moule and to supervise the Export Dept.

C. H. Phillips has joined the Bob White Org., Chicago, to direct brokerage sales in the local market and cooperate with certain national selling projects handled by the White organization.

Alvin H. Hartman has been appointed New York area sales representative, Vacuum Equipment Div., of Distillation Products, Inc., Rochester, N. Y.

The H. K. Porter Co., Inc. has appointed **John F. Cunningham, Jr.,** manager of the J. P. Devine Mfg. Co. Plant at Mt. Vernon, Ill.

Three executive promotions in the tire division of United States Rubber Co., have been announced: **Walter D. Baldwin,** was appointed director of manufacturers sales, with offices in Detroit. **J. Chester Ray** was named to succeed Mr. Baldwin as sales manager. **Harry M. Ramsay** will succeed Mr. Ray as sales manager of the Fisk Tires division of the company.

Members of Great Lakes Harbors Assn. have re-elected their entire slate of 1946 officers, as follows: **Daniel W. Hoan,** Milwaukee, president; **William G. Bruce,** Milwaukee, honorary president; **Addison Q. Thatcher,** Toledo, and **J. H. Kaiser,** Port Washington, Wis., honorary vice presidents; **H. C. Brockel,** Milwaukee, secretary, and **H. H. Naukoks,** Chicago, general counsel. (Kline)

use tote boxes, pallet systems, lift trucks and skids. The machinery should be set up so that these can come in in units, be machined, and be placed directly into other units by the machine operator to eliminate individual handlings. These should then be coordinated with interdepartmental trucks for delivery into and out of storage, and for subsequent machine operations.

The necessary thing in materials handling is to consider the entire system. Whether it be a production operation within a plant, a receiving operation at the unloading dock, or a shipping operation from the end of the finished line—all factors must be considered as a whole, so as to make the greatest savings possible by eliminating handlings or reducing the time of loading and unloading. It will readily be seen that anyone working in a materials handling department cannot just figure on an eight-hour operation day, as is the case with a production machine. The materials handling engineer must study, analyze, and coordinate all factors in the set-up before he can even determine what is the proper method to use.

Unfortunately, after he has made plans, he is faced with the problem of submitting his report to executives who know nothing about handling, but who must now pass on his report. The writer has sat in on a number of these sessions, and found that oftentimes the man who has the authority to say "yes" or "no" will not admit he does not know, but automatically negate the new idea, so as not to display his ignorance.

Materials-handling engineers will not be able to progress until top management, the board of directors, the chairman of the board, the president, and the innumerable vice-presidents, becomes cognizant of and acquainted with the meaning of the term "materials handling" in its fullest and broadest ramifications. Top management must become personally interested in materials handling, so that when visiting other plants or attending conventions or association meetings, they may know their materials handling problems and discuss them with other engineers. Instead of looking for quarter-penny production savings when they visit other plants, they should seek to discover where they can make dollar savings by adopting better materials handling methods. In fact, if they will take the time to visit the different production departments within their own plants they will find ample opportunity to effect substantial savings.

Materials handling departments should rate a vice president in charge, for he can insist that plant managers and plant superintendents accept and adopt the installation of modern equipment, unless they can definitely prove that the materials handling department is not correct in its analysis. However, for the materials handling department to do all the necessary study work and make up the report, only to have it thrown aside by the whim of an old-time super-

(*Concluded on Page 75*)

Getting down to *Cases*

By LEO T. PARKER
Legal Consultant

FINANCE AND INSURANCE

Legal Deceit

IN Neuman v. Corn Exchange Nat. Bank & Trust Co., 51 Atl. (2d) 759, Pa. the testimony showed facts, as follows: A seller required the buyer of warehouse whisky certificates, which had a value greatly in excess of ceiling price, to agree to pay $45,000 for certain corporate shares in order to get the warehouse certificates at the ceiling price. Then the seller informed the buyer that the shares would be sold to another for $45,000 unless the latter exercised his option. However, the seller did not inform the buyer that the corporate shares were tied in with the sale of the warehouse certificates and the buyer paid $45,000 for the shares which were worth not more than $27,000. The higher court held that the seller was guilty of actionable "deceit", and that the buyer could recover $18,000 from the seller.

Partnership Dissolved

According to a recent higher court once a partner in a partnership has asked a court to dissolve the partnership he cannot at a later date change his mind. For example, in Pritzker v. Stern, 51 Atl. (2d) 69, Md., irreconcilable differences arose between partners. One of the partners requested the appointment of a receiver so that the partnership would be dissolved. Later this partner desired to stop the dissolution. The higher court refused to stop the dissolution, saying: "When three partners agree to dissolve the partnership, one alone cannot by changing his mind prevent a dissolution or a receivership and sale. A partnership at will may be dissolved 'by the express will of any partner'."

Corporations Merged

Very frequently a court will "average" estimated values to establish the actual value of preferred stock in a corporation being merged with another corporation. For example, in Root v. York Corp., 50 Atl. (2d) 52, Del., it was shown that the York Corp., being merged, sought to compel preferred stockholders of the York Ice Machinery Corp. to assign and transfer their stock. Three appraisers held several hearings at which much testimony was heard, but they were unable to agree on the value of the stock. The report filed by two of the appraisers fixed the value of the stock at $90 per share, and the report filed by the other appraiser fixed the value at $197.50 per share. The higher court decided that the value of the preferred stock was $90 per share. This court also explained that when determining the amount to be paid to holders of preferred stock of a parent corporation, to create a new corporation, these facts must be considered: The value of the stock of the corporation, including the market value, asset value, earnings record and dividend record, and any other facts which were known or which might be ascertained throwing any light on the future prospects of the merged corporation.

WAREHOUSING

Things You Can Do

YOU CAN store your own goods in your warehouse without paying a warehouseman's license fee for this privilege. See Coats, 30 So. (2d) 75.

YOU CAN avoid liability for loss of or damage to stored goods if the owner fails to prove that negligence of your employes caused the loss. See Peterson, 22 N. W. (2d) 817.

YOU CAN avoid all responsibility on a negotiable warehouse receipt if the complaining party fails to prove that you were at fault. See Cowles, 178 Pac. (2d) 954.

YOU CAN continue to operate your warehouse business although new zoning ordinances prohibit or restrict you. See Davidson, 19 S. W. (2d) 812.

Things You Can't Do

YOU CAN'T refuse to comply with state warehousing laws on the grounds that you are licensed under the United States Warehouse Act.

YOU CAN'T collect storage on merchandise destroyed by fire while in your warehouse, although the loss was not your fault. See Model, 52 Atl. (2d) 137.

YOU CAN'T expect to hold any one liable for paying out your money to one who forged your name on a check or warehouse receipt, unless you promptly take legal action. See Mogid, v. Drexel Bank, 71 N. E. (2d) 898.

YOU CAN'T compel your landlord to be responsible for injuries to your customers caused by defective premises, if you signed a lease contract which obligates you to keep the premises "in good order." See Perr, 28 So. (2d) 287.

YOU CAN'T be convicted for violating the Fair Labor Standards Act on evidence that you previously violated this law. See Modern, 159 Fed. (2d) 656.

MARKETING

Unrecorded Contract

MODERN higher courts consistently hold that a new purchaser is not bound by an unrecorded contract. See Hoult v. Rich Sign Co., 170 Pac. (2d) 834, Kan.

Chattel Mortgage Broad

According to a recent higher court a chattel mortgage recorded in the state where the purchaser of merchandise resides is good, as against all other purchasers of the merchandise, in all counties in every state in the United States. See Universal Finance Co., Inc., v. Clary, 41 S. E. (2d) 760, N. C.

Not Liable

Modern higher courts consistently hold that verbal agreements or promises cannot be used by purchasers of merchandise to contradict written clauses in a contract of sale. See McKay v. Clark, 178 Pac. (2d) 679. Kan.

No Title to Stolen Goods

Under no circumstances may a person who purchases stolen merchandise have legal title to it. See Grass Co., Inc. v. Adrian Shepherd, 200 S. W. (2d) 936, Ky.

Deception

In Park Pen Co. v. Federal Trade Commission, 159 Fed., (2d) 509, the testimony showed facts, as follows: A manufacturer of fountain pens displayed an advertisement on which appeared the phrase, "Guaranteed for Life" which was in sizable type, or so that it was calculated to catch an eye's fleeting perusal of the contents of the advertisement. Then, in a less prominent place in the advertisement, usually at the bottom of the page, and in smaller, light print, there appeared this sentence preceded by a small blue diamond: "Pens . . . are guaranteed for the life of the owner against everything except loss or intentional damage, subject only to a charge of 35 cents for postage . . ." The higher court held that the latter sentence was deceptive, and that the limitation on the guarantee should appear in the advertisement close to the words "guaranteed for life" and in the same size print.

TRANSPORTATION

Fair Labor Standards Act

ACCORDING to a recent higher court an employer should keep books showing that a majority of an employe's work is related to *intrastate* work. Otherwise the employer must pay full wages specified by the Fair Labor Standards Act. For example, in Skidmore v. John J. Casale, Inc., 160 Fed. (2d) 527, it was shown that a company is engaged in the business of leasing motortrucks for haulage to business concerns. Rentals for the trucks include the cost of maintaining and repairing them. Approximately 15% of the trucks serviced are used in interstate commerce. Several maintenance men, mechanics and mechanics' helpers sued the company for

overtime wages and liquidated damages under the Fair Labor Standards Act. The lower court awarded these employes $18,630 plus $7,000 as attorney's fee. The company appealed to the higher court on the grounds that since only 15% of the trucks are used in interstate commerce the employes are not entitled to recover full wages specified by the Fair Labor Standards Act. This court refused to agree.

Jones Act

The Jones Act is an integral part of the Maritime Law, and therefore the rights of parties in suit must be determined by the Federal statutes. The only possible reason an injured employe can recover damages under the Jones Act is "negligence" of the employer. For example, in Rankin v. Iron City Sand & Gravel Corp., 52 Atl. (2d) 455, Pa. it was shown that a "seaman" on a navigable river sued his employer for damages. His leg was severed below the knee when a drifting barge drew a rope tight against the timberhead after his leg had become entangled in a loop of the uncoiling rope. The testimony showed that the injury resulted from the employer's negligence. The higher court held the employer liable for $10,000 damages, saying: "The only possible foundation for a suit under the Jones Act is negligence. . . . It is settled that the ship owner is under a duty to furnish the seaman with a safe place in which to work. This was not done."

Not Negligent

In Rosen v. Railway Express Agency, Inc., 50 Atl. (2d) 517, Pa., it was shown that a consignee proved only that a carload shipment of cherries by express reached its destination one day later than the "schedule" of five days. The higher court held the carrier not liable for damage to the cherries.

Injured Outside State

In Basham v. Southeastern Motor Truck Lines, Inc., 201 S. W. (2d) 678, Tenn., it was shown that a truck driver hired by a motor transfer company in Tennessee was killed while driving the truck in Georgia. This court held that the Tennessee compensation law was applicable to the employe killed in Georgia since both the employer and the deceased employe operated under the Tennessee compensation act.

Serves Employer

MODERN higher courts consistently hold that employes are entitled to compensation for injuries sustained while "serving" their employers, although they may act outside the scope of the employment. For instance, in Anderson v. Industrial Commission, 27 N. W. (2d) 499, Wis., the testimony showed facts as follows: A 16 year old boy was employed to remove produce from a conveyor belt. One day, being of the opinion that the gears needed greasing, he removed the top guard and attempted to grease them. His right hand was caught in the revolving gears and he sustained severe injuries. The employer argued that the boy could not recover compensation nor damages for this injury because he was hired not to grease machinery but primarily to produce off the conveyor belt. In holding the boy entitled to recover compensation under the State Workmen's Compensation Act, the court said: "It is contrary to the interests of the employer, the employe, and the public generally to deny compensation to an injured employe on the ground that he must refrain from doing work in his employer's interest that he is not specifically authorized to do."

Coming Events

Oct. 6-7—First Annual Congress and Exposition of Wholesalers, under the auspices of National Assn. of Wholesalers, Hotel Pennsylvania, New York City.

Oct. 26-30—ATA Convention, Biltmore Hotel, Los Angeles.

Nov. 10-12—39th Annual Meeting, Grocery Manufacturers of America, Inc., Waldorf-Astoria Hotel, New York City.

Dec. 1-3—Air Transport Meeting, Society of Automotive Engineers, Hotel Continental, Kansas City, Mo.

Dec. 1-5—Annual Meeting, American Society of Mechanical Engineers, Hotels Chalfonte and Haddon Hall, Atlantic City, N. J.

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Jan. 12-16—Second Materials Handling Exposition, Cleveland Auditorium, Cleveland, O.

Jan. 12-16—Annual Meeting, Society of Automotive Engineers, Book-Cadillac Hotel, Detroit, Mich.

Jan. 27—Fifth All-Industry Refrigeration and Air Conditioning Exposition, Cleveland, O.

Feb. 9-12—57th Annual Meeting, American Warehousemen's Assn., The Greenbrier, White Sulphur Springs, W. Va.

A LITTLE MORE UNIFORMITY—(*Continued from Page 29*)

type of commodity (particularly textiles) and the place of delivery (especially pier deliveries), are added for further enjoyment.

STORAGE. This is an accessorial charge closely related to redelivery. We are very gratified, indeed, that near uniformity exists as far as free time is concerned. Free time runs in most instances for 48 hours beginning the first 7 A.M. after notice of arrival. Still, there are differences in some instances, depending upon whether we deal with truckloads or l.t.l. shipments. Charges range from 1¾c. to 2½c. per 100 lb. for the first five days, and from 2c. to 4¼c. for the sixth day and every day thereafter. This is a 100 percent deviation. The minimum charge offers a modest choice from 25 to 66c. There are also a score of specific charges for terminal handling and removing to warehouses; and different rules for export freight, textiles, Sundays, holidays, etc.

INSIDE DELIVERY. This is another service which is frequently requested or rendered, particularly in larger communities. It is generally understood that the duties of the motor carrier do not go beyond delivery to, or collection from, loading platforms, docks, warehouses or sidewalks. However all the combined intelligence of the authors of bureau tariffs has not been sufficient to devise a simple and uniform terminology for this necessary evil. Thus every shipper and receiver of freight, who because of the particular type of his facilities needs a special service, has to make a very thoughtful analysis to properly define his rights and duties. After the very fine line of demarcation between the shipper's rights and carrier's duties has been safely drawn (of course not at all uniform as to the various territories), we are faced with a variety of charges, of which the following provisions are just a modest example: freight coming from or destined to the Middle Atlantic territory is subject to an inside delivery charge of 15c. per 100 lb., modified by a host of individual exceptions; the charge on shipments from and to the eastern part of the Eastern Central territory amounts to 13 or 17c. per 100 lb., depending upon the specific type of delivery. The western part of this territory has its own ideas. Here the charges are 14 or 19c. respectively. But as a small concession to uniformity, the minimum charges are the same. The adjacent territories, the Central States, do not recognize any necessity or possibility of inside delivery at all. The South, however, is very liberal in respect to shipments to New York. If my understanding of the rules is correct, inside delivery is included in the rates, resulting in substantial preference for the shipper who requires such a service. Rates to the Transcontinental territories are quite hazy with regard to this service. They are too far from the place of action and their rule is ambiguous; no charges are provided. The New England carriers, who can boast of the most intimate acquaintance with this problem, also show the highest rate; viz. 29c. per 100 lb., minimum 60c. The full scale is graduated from zero to 29c. with many ambiguous situations and many individual exceptions thrown in for added confusion.

DEMURRAGE AND DETENTION OF VEHICLES. It was many years before the motor carriers awoke to the recognition that they are confronted with exactly the same problem of detention as the railroads are. Of course the loss in time during which costly equipment is not put to income-producing use counts in hours rather than in days. Still, under present labor and equipment conditions, these hours are equivalent to hard earned dollars. Idle equipment and idle men cut deeply into the narrow margin of motor carrier revenues. However, so far only three territories publish actual detention rules: New England, Middle Atlantic and the South. While the New England carriers established a complicated but logical system of charges predicated on the applicable class of the commodity shipped, the other bureaus apply a rather simple scale of free time depending entirely upon the weight. *No provisions are to be found in other tariffs.* Therefore, if the same shipper receives at the same day a load from Boston and another from Chicago and he is unable to unload both at the same time and with reasonable speed, he will of course first unload the New England carrier in order to avoid detention charges. The shipper can do that without being penalized by detention charges. However, if the traffic manager of the firm is not so intimately acquainted with these intricacies of motor transportation, he may discover later, much to his displeasure, that he unnecessarily w a s t e d some money because of this lack of uniformity.

DIVERSION AND RECONSIGNMENT. This is surely another of those services which are almost as old and well established as rail transportation itself. No doubt motor carriers are faced with more complicated and variable situations than railroads. Still, certain basic services can easily be determined and it should not be too difficult to define those clearly and to assess uniform charges. Yet, in checking through the tariffs of the small number of leading bureau publications, we find just as many different formulations, definitions and charges as there are agents. Some, very primitively, reprint the old sacred railroad rules almost literally, although of course they do not fit. Some groups try successfully to incorporate the special services expected from and rendered by motor carriers into their reconsignment and diversion rules and to assess a proper but complicated system of charges. Others just turn away from all these problems and do not allow any but the most fundamental form of diversion—leaving it to the intelligence and the policy of the individual carrier to develop proper practices and charges.

PICK UP AND DELIVERY CHARGES. During recent months, we have been faced with this new appearance in the colorful array of freight charges, particularly in New York. Originally devised in order to compensate to some extent for the extremely high costs in the New York commercial zone,

they are gradually becoming an inherent part of the line haul rate. Of course it cannot be expected that all bureaus apply the same principle. It goes far beyond that: We find arbitraries applying to the New York area in one instance and a "surtax" in another. In certain instances terminal charges for pick up and delivery are published and the accompanying table will demonstrate to what extent they differ.

The differences in rates are further complicated by a great number of individual carrier's exceptions and special rules for pier deliveries as well as the handling of certain commodities. However, every cloud has a silver lining. In connection with these charges or other rate arbitraries, New York City has been divided into different zones. It should be credited to the practical intelligence of the carriers that at least as far as zoning is concerned, they have successfully attempted to create a uniform division of New York and its border communities—with only slight differences caused by territorial tariff applications.

It would be very gratifying indeed, if we could conclude our story on such a hopeful note, but this would be a misrepresentation. There are numerous other rules and regulations dealing with minor services and practices in terminal areas and all of them bear the distinct characteristics of their very individualistic editors. To name just a few: pick up and delivery allowance, split deliveries or truck load shipments, handling of heavy or bulky articles and additional labor, spotting of equipment, pooling of freight, handling of pool cars, and quite a few more.

It should be well understood that this complete lack of uniformity exists not only in instances where different carriers serve exclusively one rate territory and the shipper or receiver of freight deals with individual carriers depending upon points of origin or destination. Practically all the larger carriers and a great many of the medium-sized carriers extend their services over more than just one rate territory. On top of that, in many of the larger cities, pick up and delivery agents perform the

	less than 2,000 lbs.		2,000 to 5,000 lbs.	5,000 to 15,000 lbs.	over 15,000 lbs.
	Rate	Min. chge.	Rate	Rate	Rate
Southern Tariffs					
Zone 1	25	75	19	13	none
Zone 2	38	100	31	19	none
Zone 3	50	150	38	25	none

	Less than 5,000 lbs.		5,000 lbs. or more	Truck Loads
	Rate	Min. Chge.	Rate	Rate
Eastern Central Tariffs				
Zone 1	10	10	5	3
Zone 2	15	15	8	4
Zone 3	20	20	10	5

actual terminal services. There is simply no defense for a condition where the same delivery carrier asks different charges from the identical shipper or receiver of freight for identical services, just because the shipment originated in different rate territories.

Now, we are fully conversant with the fact that this lack of uniformity has many causes, many reasons and maybe some sound justification. We know very well that some of these rules and charges are just traditional and historical and that the carriers just haven't gotten to the point yet of freeing themselves from the old railroad tariffs. We are well aware of the influence which competition with other modes of transportation exercises on the construction of rates and charges (particularly the rates of forwarders, express companies and contract motor carriers). We have a very vivid conception of one of the famous inherent advantages of motor transportation, its widely heralded "flexibility"—and we are fully in accord with it. We also have witnessed more than once that the motor carrier industry is composed of a large number of rugged individualists, and if anywhere in this country's industry "small enterprise" and "individual initiative" and "free competition" is still left, the motor carrier industry is the place. And we are very conscious of the fact that the only feasible method of incorporating all these characteristics into actual practices and services is through this very medium of rules and regulations and charges.

But while we are only too well prepared to admit all that, we cannot conceive of the apparently unavoidable necessity that this should be done with such an utter disregard for uniformity. There is no limit to the fancy or to the experience of the tariff compilers as to what situations and specific circumstances may have happened or may arise. Certainly, everybody with just a little practical experience is able to prove his astuteness by contributing just one more unusual potential situation which requires another clause or note or charge. So the rate and tariff makers may too easily lose sight of a few very pertinent facts: (1) The main source of revenue for every over the road carrier should be his line haul. (2) Accessorial charges, at their best, should just compensate the carrier for basic accessorial services, they should never be considered a source of revenue (their proportional share of total revenues should not amount to more than a fraction; the advantages gained by so great a refinement in these charges will be more than outbalanced by the difficulties and loss of time assessing and applying them; in some instances they have been set up for the avowed purpose of discouraging the detention of equipment and the congestion of the carrier's facilities.) (3) Uniformity will eliminate controversies and friction with shippers. (4) The sacrifice of a few pet charges here and a few cents there in order to equalize these charges with other rate bureaus may pay high dividends in savings of clerical work and improvement of the shipper's good will.

What has been done and what can be done to achieve greater uniformity? Very little has been done. Some bureaus have voluntarily adopted some formulations of other tariff publishing agencies. A short-lived move was started some time ago by a motor carrier organization in New York. The National Traffic Committee has appointed a sub committee to further the effort for this uniformity. So far the results are very discouraging.

Here is one subject where motor carriers could adopt the example of their older brothers, the railroads, much more to their advantage than they did with regard to the construction of rates. The railroads have published (partly under direct pressure by the Interstate Commerce Commission) uniform tariffs for some of these accessorial services, storage, demmurage, diversion and reconsignment. In most instances they publish a so called "omnibus" rule in their tariffs, which refers to special rules published in the tariffs of the delivering carriers, "Terminal or Transit Privileges or Services." Consequently, no matter where and with which railroad a shipment originated, it will, at the time of delivery, be subject to a uniform set of rules and charges for accessorial services, published and applied by just one railroad, namely the delivering carrier. These charges, for instance, as published by the Pennsylvania Railroad will apply uniformly for all shipments delivered by that road in New York or any other of its terminals, whether the shipment originated in California with the Southern Pacific or in Georgia with the Southern Railway. Thus the shipper or receiver of freight located at one point is reasonably assured that he will have uniform regulations and charges for this type of services.

The writer thinks that the only reasonable solution would be to entrust the rate bureaus in the various home territories to publish such charges for the account of all carriers participating in interterritorial traffic to and from their territories. Accordingly, rules and charges for the Middle Atlantic territory should be published by the Middle Atlantic Carrier Conference; for the New England territory, by one of the New England rate bureaus; for the Pacific Coast by the Pacific Motor Tariff Bureau. This cannot be done without the sacrifice of some traditions and prestige, and it will not be done overnight. It can be accomplished only step by step—one carrier group after the other renouncing its prerogatives and privileges for the benefit of smoother operation through greater uniformity, thus drawing the reluctant and all too individualistic groups into their magic circle.

We do not claim that this problem to which we tried to attract some attention is a life and death matter for the motor carrier industry; we are earnestly convinced, however, that it represents one of those smaller but annoying issues, the proper solutions of which will characterize the industry as progressive and as responding to a reasonable challenge—a challenge where very tangible results and valuable improvements of services can be achieved with a comparably small effort.

ments which had to be opened, inspected and repacked for stock storage—all more work for Bill's section. Also, as a result of declining sales, each department responsible for new business began to intensify their efforts. The advertising department, sales promotion, dealer service, consumer bureau and public relations all had their campaigns and brain-children to be pushed out. There were new sales portfolios and brochures for all salesmen and branch offices, dealer window display materials, interior merchandising pieces, premium offers, literature, circulars, electroplates and what-not. All of this poured work on Bill and his cohorts.

A packing foreman's daily report (see Figure I) submitted each day for comparison with the company's other statistical data, gives ready breakdown and analysis of all the accomplishments within the cargo preparation function. As the reporting continues, it becomes increasingly valuable in judging the volume of work in corresponding periods. The cost of the department, also, can be related to the average for each job performed and then compared with the industry as a whole. If Bill's costs are too high it will stand out and can be corrected. On the other hand, if by comparison, Bill is doing an excellent, economical job the value of himself and his crew is intelligently established.

Is a daily report difficult for Bill to prepare? It can be if Bill trusts to memory and bits of paper to reconstruct a day's activity. It becomes extremely simple if the following cardinal rule is adhered to: "No Job Performed Unless Covered by Work Order". This is the crux of good control within the packing room. Everything in writing means the minimizing of errors and the ending of disputes as to who ordered what. It also means Bill has at his finger-tips a picture of the tasks before him, to whom assigned and the rate of progress. He knows where to bring pressure, where to give help and just where to locate his incompetence.

Figure 2 shows typical information which the work order form might have. Every job should be signed by the proper authority for initiating the packing work. Bill should receive two copies; one, he assigns to the man or crew to do the job (which copy is returned to Bill when the job is completed with proper notations). The second copy is retained by Bill in an "open-job" binder or pigeonholes. From this he knows at all times the status of outstanding work. If there is much occasion for future reference to job particulars, it may be advisable for Bill to also enter particulars of all work-orders in a register. If not, completed work orders may simply be filed once the daily report is made up.

Does all of this make a bookkeeper out of Bill, whose functions are primarily manual? When the

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DESIGN FOR INDENTIFICATION—(*Continued from Page* 33)

tagged with the same insignia, go through the ticket office in the grey, green and yellow color scheme, board the familiarly-marked plane, eat your meals from plates and cups with the same marking, the external markings and internal color scheme all tie up so that airline identity is impressed on you. This integrated identity was even carried down to such items as a C & S monogram on give-away soap cakes, all their advertising agency projects, their publicity executives releases, and the president's calling card and letterhead. While this new design has been in operation with C & S for only a short time, it is now immediately recognized throughout the whole C & S route.

Another typical example in a completely different field is a line of products and package designs done for a comparatively new company in the plastic products field. This is the DuPage Plastics Co., which so successfully manufactured Vinylite sun stills for the army and navy during the war. Its first conversion products were a small and a giant Vinylite play ball, a life raft and other play toys. These were all designed to have a general family resemblance. Other products were compasses, games and even types of costume jewlery made from plastics.

The first step in packaging these products was establishing a logotype to carry through the whole line. A trademark for DuPage was worked out which was always used in conjunction with the word "Vinylite." From there on, every package or carton had the family resemblance of the DuPage trademark when used in conjunction with Vinylite products, which employed the characteristic logotype descriptive of the product in the package. The colors for the descriptive part of the package, in general, had the same basic values. The overall color was varied to express the many diversified types of products manufactured. Again, this scheme was carried throughout displays and shoprooms, and was utilized to the fullest by the firm's advertising agency.

The line of machine tools developed for the Ex-Cell-O Corp., is another example of product identity carried through an entire line of machines, and going far beyond mere brand labeling. The treatment of the frame castings and many of the details was worked out in 1935 with a view to providing a "theme" which would immediately stamp the products as exclusively Ex-Cell-O. Therefore, the use of vertical ribbing, softened radii, etc.—all of which had been used before—was abandoned in favor of chamfered corners and evenly-spaced horizontal recessed bands.

Five machines treated in this manner were shown at the Machine Tool Show in Cleveland in the fall of 1935, the last national show to take place in the industry until the exhibition in Chicago this month. Additional machines, as they came up for re-engineering and development in subsequent years, were treated in the same manner, and since the war VD N&S has designed a center lapping machine using the same motif.

As with any decided departure from the usual engineer's conception of the treatment of heavy castings, this theme has been the target of many brickbats. Old-line foundry men have said that the recessed bands required outside coring, extra finishing time, etc. Actual practice in the company's experience has, however, proved the opposite. As any manufacturer who has to deal with large plain surfaces of gray iron knows one of the greatest expenses in his shop is the snagging, hand grinding and filling of pits, paves and irregularities in broad plain surfaces of heavy castings. Especially since the war, the surfacing finishing of machine castings has become a major headache due to excessive cost. The banded treatment of the Ex-Cell-O castings succeeds in giving to these castings a tailored effect, due to high lights and shadows in the bands, which actually eliminate some of the costly finishing operations. Anyone who knows anything about machinery can walk into a shop and spot an Ex-Cell-O machine at a distance of several hundred feet, long before he can read the name of the maker. Mr. Phil Huber, president of the company, says that from a merchandising and sales point of view, this E-Cell-O "theme" was one of the smartest things they ever did.

Still another example of an identifying family resemblance is in the retail store equipment designed by VD N&S over a period of years for Toledo Scale and allied companies. In 1938 the first scale of the new design was introduced to the retail store trade. It was unique in many respects. Instead of being made of cast iron and porcelain enamel, it was made of aluminum and of what was then a comparatively new material, the urea plastic called Plaskon. Several years of engineering development had preceded the introduction of the scale and by the further use of a new material, weight was cut almost two-thirds. In the new design the treatment of surfaces was intentionally different from any similar equipment on the market. It was treated in a series of facets and chamfered edges so that there could be no possible confusion between the new material and the customary cast iron or sheet steel with porcelain enamel coating.

The new scale, reduced to the form of a box instead of a massive frame with a cylinder poised on top, created a small sensation in the world of retail trade. The housing was a single plastic molding, the largest ever made at that time. The mold alone weighed eight tons, and the molding press was nearly three stories high. Two years later a companion scale was brought out, adaptable to delicatessens and meat stores using very high refrigerated display cases. This was made of eight plastic moldings bolted to a chassis. It used the same general theme of design as the former box-type scale. At this time the Toledo Scale Co. had a sales arrangement with the Enterprise Manufacturing Co. to handle its line of meat choppers in many sections of the country. Accordingly VD N&S designed a chopper utilizing the same plastic material and the same treatment, thus rounding out a sizable family of

these necessary adjuncts to retail store selling.

Another example of "family" treatment of machines was worked out for Baker, Perkins, Inc., leading makers of bakery machinery. Processing of bread in a modern bakery calls for fire primary machines, the dough mixer, the divider, the rounder, the proofer and the oven. A series of these machines were developed by VD N&S in collaboration with the client's development engineers. Dust protection and easily cleaned surfaces were of prime importance. Although each machine is completely different from the others in basic form, similarity was achieved by the resemblance of curves and radii, the distinctive treatment of nameplates and central panels, and the use of a motif of three chromium bands.

In conclusion, it may be pointed out that identity of products and service of a manufacturer can be strongly presented to the public through the work of the industrial designer. However, it must also be pointed out that in order to do this job effectively, the problem must be carefully studied and the experience of the designer must be broad. Certainly the advantages of product identity have been proved. Radio and other advertising has demonstrated the value of pushing the product name identity.

MATS. HDLG. DEPTS.

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intendent or plant manager who is production-minded more than handling-minded, is a waste of time and money, and the materials handling department should not be in the organization set-up.

Now is the time for industrial, railroad and other executives to make materials handling systems a reality. The money that can be saved is incalculable. Proof has been given during war production in innumerable plants and under very trying circumstances. It should not be necessary to call this to the attention of top management. They should already know about it, but the writer knows from his own experience that they do not! The writer will be glad to discuss the ideas advanced in the article with interested readers.

creased earnings. With the end of the war, therefore, most people had larger savings than before the war. Our total population increased during this period by about seven million people and during no other era did we ever experience so large a migration of people from one part of the country to another. Many areas increased in population so rapidly that they changed almost over night from unimportant markets to major markets. Therefore, at the close of the war we found that many markets had assumed an importance far greater than their pre-war importance, that in all areas of the country the people by-and-large had capital surpluses they had built up during the war and that the majority of people in the country were receiving a larger share of a much larger national income.

With full employment for the next few years we will have peacetime earnings and sales opportunities unlike any we have known heretofore. With a fully employed economy we will have 59 million workers gainfully employed as compared with 1930 when we had 44,953,000 workers gainfully employed and in 1940, only 45,338,000.

There have been many estimates made of the size of our future national income at full employment. Most of these estimates are in reasonably close conformity. One of them, which appears reasonable and is readily available, was made by the Bureau of Labor Statistics of the United States Dept. of Labor and published in the *Monthly Labor Review*, February 1947. This study estimates that income payments to individuals in an economy of full employment at a cost of living index of 131 will amount to $178 billion as compared with income payments in 1941 of $92.7 billion at a cost of living index of 105.

Since few sales managers are either statisticians or economists they are totally unable to grasp the full significance of the meaning of this increase in income to individuals. As we move from a low income base to a high income base we do not simply increase everyone's income proportionately. We do tend to distort seriously the earlier relationship.

There are relatively few companies in the country whose products are sold to every income class group. Many products are sold to people with certain minimum incomes and those whose incomes are below this minimum cannot afford to buy them. For example, it is generally conceded that people cannot afford to buy a home which costs more than twice their yearly incomes. Therefore a builder with 10 thousand dollar homes to sell cannot hope to dispose of them to families whose yearly incomes are less than 5 thousand dollars. This builder's interest in the future income of the country is in the number of people there will be at any given income level who will have enough money to buy his 10 thousand dollar homes. He is not able to translate a $178 billion national income into the number of potential customers it will give him.

There are ways to determine the number of consuming units at each income class for any income level. However, only trained economists or statisticians are expert in the use of the techniques which must be employed to do it. A highly simplified method is by the use of a Lorenz Curve relationship which is illustrated in the accompanying chart and explained subsequently in more detail. In the Bureau of Labor Statistics Report referred to above there does appear a limited distribution of income by income class groups for the estimated future income of $178 billion at full employment and for 1945 and 1941 incomes. However, none of these income distributions are distributions of the same kind of dollars and therefore they cannot be compared with each other.

We know that today we do not have the same price level we had before the war and that the current dollar is not comparable in purchasing power with the pre-war dollar. We know that a $178 billion income today cannot be compared on an equal dollar basis with any pre-war income. However, we can reduce this estimated full employment income of $178 billion to a comparable pre-war dollar basis by deflating the dollars used in it to pre-war dollars. We can then compare this deflated full employment income with our pre-war income and arrive at conclusions which our non-economist sales managers can understand.

In the years 1938 and 1939 the National Resources Committee of the United States Government published a study called "Consumer Incomes and Expenditures in the United States." This was the most exhaustive study ever made of the distribution of incomes and of the expenditures for consumption by income class groups in the United States. It covered incomes and expenditures for a twelve month period during 1935 and 1936. The price level which prevailed during the time of this study was about 99 as compared with an estimated price level of 131 in the $178 billion full employment income study made by the Bureau of Labor Statistics. In order to establish dollar comparability between these two studies it is necessary to bring them both to the same dollar value, or cost of living level. Therefore, we are deflating the $178 billion income from a cost of living index of 131 to the cost of living index of 99 which prevailed during the 1935 and 1936 era. This deflation will

Sanitizing Unit

Here is a new type of air sanitizing unit, Viragon, to kill harmful airborne bacteria and destroy obnoxious odors. The unit combines an ultra-violet ray Sylvania electronic tube, made to specifications, and a

built-in sanitizer. It is laboratory-approved for safety in continuous operation. It is available in wall bracket mounting as shown or mounted in a tall stand for plugging into an ordinary light socket. It is said to have proved especially effective in packing and slaughtering houses, warehouses, factories, offices, rest rooms, etc.

then give us an estimated comparable dollar income under full employment of $134 billion, rather than $178 billion. This increase in income amounts to an increase of 127 percent over the 1935-1936 income.

With an increase of 127 percent in income during these two periods it seems reasonably certain that a somewhat different distribution pattern will be experienced with the higher income than was the case with the lower income. It seems also reasonable to assume that a larger proportionate share of the increase in income will go to the lower income families than to these of higher incomes, but there is no way of knowing exactly what this distribution will be. The accompanying chart shows graphically a projection of the distribution for the increased income as compared with the distributions for the lower income. It has merely been assumed that the new distribution line will move about 5 percent closer to the line of equality than the old distribution line. This is purely an arbitrary assumption and some other percentage movement might be just as acceptable.

The following table shows the distribution of consuming units for both periods on a comparable dollar basis:

Distribution of Families and Single Individuals By Income Levels, 1935-36 and Future

Income Level	1935-1936	Future
0 – 250 ...	2,123,534	
250 – 500 ...	4,587,377	2,700,000
500 – 750 ...	5,771,960	4,950,000
750 – 1,000 ...	5,876,078	4,500,000
1,000 – 1,250 ...	4,990,995	4,950,000
1,250 – 1,500 ...	3,743,428	3,150,000
1,500 – 1,750 ...	2,889,904	2,700,000
1,750 – 2,000 ...	2,296,022	2,700,000
2,000 – 2,250 ...	1,704,535	1,800,000
2,250 – 2,500 ...	1,254,076	1,800,000
2,500 – 3,000 ...	1,475,474	3,600,000
3,000 – 3,500 ...	851,919	2,250,000
3,500 – 4,000 ...	502,159	1,350,000
4,000 – 4,500 ...	286,053	900,000
4,500 – 5,000 ...	178,138	1,350,000
5,000 – 7,500 ...	380,266	2,250,000
7,500 – 10,000 ...	215,642	2,025,000
10,000 – over ...	327,504	2,025,000

From the above table it can readily be seen how the number of families with incomes of $2,500 and over increase in the full employment pattern of distribution.

With this distribution of incomes it becomes a relatively simple matter to determine the extent to which these incomes will exist in specific trading centers and to establish a sales index for each of these trading centers. This may be done on as intensive a basis as is required. With the use of the expenditures data in the National Resources Committee Report an endless analysis of markets and their potential values could be made. The need for an intensive analysis of these changed markets may not now be realized. The time is not far distant, however, when competition will have placed those sellers who have intensively analyzed their markets in a highly advantageous position.

The old established relationships which existed between markets and buyers in those markets will no longer prevail. The three factors which have changed this relationship are: 1. The increase in population. 2. The migratory shift of population. 3. The higher level of national income. The increased populations and the shifts of populations have altered the relative importance of many markets. The higher national income level which now prevails has also changed the pre-war relationship that existed between income class groups.

Few fields of endeavor offer greater prospects of dollar return on the expense involved than does an intensive analysis of today's changed markets. The future rewards for today's efforts along these lines will be read in the financial pages of tomorrow's news when dividend payments are reported as high returns on invested capital.

New Helicopter Plant

..The Piasecki Helicopter Corp. has recently moved into its new $500,000 development and manufacturing plant at Morton, Pa. The firm has grown rapidly from a group of five engineers seven years ago to a company employing over 500 men. The company was awarded contracts during the war, and today is building many large transport helicopters for the army and navy. The production bays of the modern plant are equipped with the latest in woodworking, machine shop and assembly line machinery. The final assembly hangar is large enough to accomodate the biggest of transport helicopters, existing only on drawing boards today.

tion cost varies widely with the product and the handling and marketing methods required to bring the product to the consumer, methods which are, in large part, governed by the product. Fruit shows a 35 percent handling and transportation cost, tobacco only two percent, milk, 21 percent; to deliver to the consumer, bread, 34 percent, electrical appliances, one percent.

Perishability lies behind high transportation and handling cost on fruit and all produce. Better equipment for transporting perishables may be one answer for lower distribution cost here. Another general conclusion that may be drawn from the foregoing tables is that marketing expense on products that require a substantial investment on the part of the consumer, and which must be sold after demonstration and considerable selling effort, such as farm implements and large unit value electrical appliances, is higher than the marketing expense on products that are bought repeatedly, such as cigarettes. In other words, demand and convenience goods will show lower marketing expense in terms of the consumer dollar than specialties. Bread and milk show higher delivery costs because the products are brought to the doorstep.

On some products, transportation and handling does not run high in relation to the consumer's dollar, but when figured on manufacturer's production cost it may total twice as much. For example, the handling cost on farm impleents is 2.6 percent of the consumer's dollar and this could run 5 or 6 percent of production cost, allowing for considerable saving, but it is hardly likely that this saving would reach the consumer, and if the entire sum were given the consumer, it would permit him to buy a one thousand dollar farm implement for only 26 dollars less. However, a manufacturer who could save 20 percent of his handling cost by using more efficient equipment and methods, in the aggregate over the year could increase profits substantially. Based on the handling cost shown for farm implements this would amount to around 50c. per one hundred dollars paid by the consumer. It is hardly likely that the consumer would get this saving and it wouldn't mean much if he did, but to the manufacturer, with a 500 thousand dollar production cost it would mean five thousand dollars or more increased profit. This angle must be considered when appraising distribution cost and savings in this cost as they affect the consumer. Manufacturers may make substantial savings in the aggregate, but the consumer on one unit purchase is not likely to experience the benefit of the lower distribution cost.

THE VOLUME MARKETED. Less than carload shipments hike the unit cost of handling a product; warehousing and delivery costs may be reduced in ratio to the increased volume handled or increased when the volume handled decreases. On production, this is commonplace. A plant with ten thousand dollars fixed overhead a month, turning out ten thousand units, has a fixed cost of one dollar per unit of production. If production is increased to 20 thousand units, the fixed overhead per unit is 50c. The same rule should hold, one would think, on distribution cost, but it doesn't. The 1942 figures covering 15 of the largest cracker and biscuit manufacturers show that those with a volume of more than five million dollars yearly had a selling and delivery expense of $3.04 per 100 lb. of production, whereas companies with a volume under five million dollars yearly had a selling and delivery expense of only $2.11 per 100 lb. of production. This indicates the folly of trying to yardstick distribution cost on the same basis as production cost. However, the volume handled is a factor that influences distribution cost and should be considered when studying the problem. If the volume varies substantially from one period to another, the cost of handling and of marketing may vary, despite all attempts to standardize them.

THE TYPE CUSTOMER AND CUSTOMER BUYING HABITS. Studies made in the past show that products going to the industrialist experience lower distribution costs on marketing and handling than those selling to the consumer. Handling cost is lower because many products for factory use are made on specification and need not be warehoused for lengthy periods before delivery. Sales promotion and marketing expense is lower because the more expensive media, national magazines, newspapers and radio, are not used to bring products to the attention of the purchaser and packaging need not have expensive eye appeal. Figures based on a study made by national advertisers and National Assn. of Cost Accountants show the variances between distribution costs on consumer products and industrial products. (See Table 3)

Consumer preference for small unit purchases, an inheritance of this modern age when merchandise can be replenished so quickly, when deliveries from suppliers are daily instead of semi-anually, has increased handling and marketing cost. One remedy is to take steps to increase the unit sale. But dress manufacturers usually send only one model of the same garment to a community, because no woman likes to buy a dress like her neighbor's. Here style consciousness dictates consumer buying habits and increases distribution cost. A remedy is pretty much beyond the scope of business management.

COST OF TRANSPORTATION. Analysis of prewar figures shows the following costs of transportation in ratio to producer's selling prices.

Fruits and vegetables	58.2
Fuel	20.4
China and household goods	17.3
Household furniture	10.5
Radios	10.5
Office furniture	10.5

Because transportation charges are fixed by regulation, businessmen have limited control over them; nevertheless, a study of all transportation factors and the counsel of competent traffic men should have a beneficial effect on this cost. Even in the same trade

group, transportation expense shows wide variation. The Interstate Commerce Com. offers some interesting figures as of 1940. (See Table 4)

TURNOVER. In the retail and wholesale fields, different lines have different turns, the faster the turn the lower the cost per unit sale. It is the same with manufactured products. Some lines must be warehoused longer than others and this means higher handling costs. In some cases, however, the proper analysis of stocks or a reduction in the lines, models or styles carried would reduce handling costs. This, however, is a matter for management to study individually. It has been done before with profitable results.

MARGINS OF PROFIT. If margins are high, as in the cosmetic field, marketing cost may be under scrutiny and handling cost considered too small in ratio to selling cost to rate much attention. Only when prices are forced downward and margins shrink for one reason or another does management watch handling cost to effect economies. Through force of habit, some managements overlook the savings potential in handling cost even after they have dropped from high-bracket to low-bracket prices, a costly oversight that should be corrected where it exists. Small items of high unit value in the luxury class are likely to have a low ratio of handling cost and a high ratio of marketing expense.

PROCESSING PROCEDURE. A suit of clothes travels from the wool grower to the wool merchant, to the yarn processor, to the converter or weaver of the cloth, to the garment manufacturer and then to the retailer and the consumer. Each step adds a handling and marketing cost. Each processor can cut his costs with intelligent supervision, but to effect distribution economies so that the consumer will benefit demands a study of all processes contributing to the finished product by an overall agency manned by distribution engineers. Until we get a workable means of assembling distribution costs, distribution cannot be

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THE GEARHART TAX BILL—(*Continued from Page 27*)

ters, I have not the slightest doubt we can cut taxes 5.5 billion dollars and also have a substantial amount left for public debt retirement," said Gearhart on the floor of the House. "My bill would substantially increase the take-home income of the farmer, the laborer and the white-collar worker. The exemption would be one thousand dollars for single persons; two thousand dollars for married persons; two thousand dollars for heads of families, and the five hundred dollar allowance for dependents would be continued. Under existing law a married person with one dependent pays an income tax when his income is 1.7 thousand dollars. Under the proposed law he would not pay an income tax until his income exceeded 2.8 thousand dollars. A married man with two dependents would not be liable until his income reached 3.4 thousand dollars as compared with 2.2 thousand under the existing law. The great majority of farmers and wage earners would be relieved of the necessity of filing income tax returns. Husbands and wives living in non-community property states would be allowed the same benefits for federal income tax purposes as are allowed under the community tax system which prevails only in a few states. To remove the inequity of collecting estate taxes from men dying in the military service during World War II, the new law would exempt the estates of such men from additional federal estate taxes.

"I believe federal taxation, to be sound, should be garnered from going businesses and services as they occur. Taxes, to be sound, also should be easy to administer, with a minimum of loopholes for dispute. The manufacturers' excise tax is the simplest and most efficient form of taxation now available to the federal government. It is as easy to administer as local levies on real estate. I want to emphasize that under H.R. 4352 there would be no excise taxes on food, housing or transportation to and from work. Those three items comprise a large part of the cost of living for the average person.

"I think, in many cases, the excise tax will be absorbed by the manufacturer, wholesaler or retailer in the expanding business that will result from such a levy in lieu of existing deterrents.

"I think, moreover, removal of the oppressive rates under the income tax will result in the free flow of risk capital, encourage management incentive, and materially aid production."

The Gearhart bill would repeal the tax on transportation of property, on furs, jewelry, cosmetics and luggage. The tax rate on local telephone service would be reduced from 15 to 3 percent; that on long distance telephones, telegraph, radio, cable facilities, leased wires, etc., from 25 to 5 percent; and on wire and equipment services from 8 to 2 percent. The tax on lease of safe deposit boxes would drop from 20 to 10 percent, club dues and initiation fees would be taxed 10 rather than 15 percent; and the excises on the following products would be entirely repealed: tires and tubes, auto trucks and buses, passenger autos and motorcycles, lubricating oils, auto parts and accessories, electric appliances, gas and oil appliances, radio receiving sets, phonographs and musical instruments, mechanical refrigerators, business and store machines, photographic apparatus, matches, sporting goods, firearms, shells, pistols and revolvers. The excises on these articles now cost the nation 1.08 billion dollars.

The new surtax schedule would start at 11 percent on the first two thousand dollars on surtax net income, and a top rate of 47 percent on surtax net income in excess of one million dollars. The normal tax rate would be 3 percent. The net revenue tax loss to the Treasury would be 5.6 billion dollars.

Despite news reports to the contrary, members of Congress expect to return for a special session not later than November. There is much more pessimism about Europe and general world affairs in Washington than is allowed to become vocal. Aside from distrust of Russia, there is utter dissatisfaction with the actions of the dominant non-Russian nations of Europe. Britain will ask the United States to defray the largest part of the German occupation costs, and to modify many of the present conditioning qualifications of her 3.9 billion dollar loan. She is expected to ask for a new loan. She is also expected to ask that the chief industries of Germany be socialized; nor is she enthusiastic about the quick revival of German production under the highly integrated and mechanized American methods and under private management. American observers in official circles hold that French and British reluctance stems more from the desire to check the rebirth of the German industrial machine than from fears of security. All this crystallizing thought has more sharply defined the idea that the non-Russian Europeans must accept a realistic program for rehabilitation or give up the hope that we will pour huge resources into the old continent. In the last rush of the session huge sums were voted for relief, and a

Fork Trucks Are Popular

The fork truck of 2000 lb. capacity now is used in all of the 20 basic classifications of manufacturing industries established by the U. S. Department of Commerce according to results of a recent survey conducted by the Hyster Co., Portland, Ore.

A factor in the wide adoption of this truck in industry according to the survey is the trend toward the use of pneumatic tires. These tires allow greater operating speeds and permit operation over slippery and rough surfaces and on steeper grades both inside and outside of plant buildings.

19 member committee was created which will go to Europe with the very hard-boiled purpose of finding out whether or not their suspicions that perhaps Europe is not worth the expenditures of resources we have been asked to make are justified. The latest appropriations may in reality be the last. The Marshall Plan is rapidly becoming a blueprint based on the fundamental thought that we can only help the Europeans to help themselves. The mail from back home appears to reveal that the country is swinging again to the exclusionist, but not the isolationist, viewpoint.

Congress does not appear to have complete faith in the hullabaloo about the absence of dollars abroad and the lack of resources in foreign countries. The U. S. Treasury and the great banks are quoted as authorities for the report that foreign nations possess sizable backlogs, public and private, of dollars and other resources. The total of gold holdings, dollars and credits currently available are quoted at not less than 33 billion dollars, and are regarded by some responsible authorities as totaling as much as 50 billion dollars. According to a census of foreign-owned property in the United States, made by the Treasury, but not including huge resources derived from concessions, franchises, copyrights, trademarks, patents, and similar income-producing properties, foreign nations own more than 20 billion dollars worth of prime assets in our country. Upwards of 70 percent of this is reported to belong to the British, the Canadians and the Dutch; approximately 60 percent belongs to the British and their nationals of the various commonwealths, colonies, possessions and other subdivisions.

One of the last legislative acts of the Congress was to freeze the social security payroll tax at one percent for another two years. If this act had not been passed, the economy would have been obliged to produce an additional two billion dollars for payroll taxes.

When the President returned from his mother's funeral, he found almost 300 acts which had been passed during the closing days of the session. Most of these acts, which he must either approve or veto, were what are called "private bills." A private bill is for the specific relief or reimbursement of some individual or private group. Usually these bills are enacted in bulk at the end of a session in great haste. Occasionally such bills, as well as other laws slammed through Congress with assembly-line speed, carry those innocent little clauses with dynamite in their final detonation, called jokers. Every responsible Congressional Committee tries to prevent the enactment of such jokers, but obviously men are only human. If there are any jokers in this mass of legislation, it will take months for the facts to become known. Several years ago there was a joker in an act which escaped all notice, until it was discovered that a number of army officers of colonel rank had been able to retire with the high salary and emoluments of a major-general, which rank they happened to be holding temporarily, but at which status they would not normally be retired.

Among the laws passed in the closing days was an extension of the export-import controls until Feb. 29, 1948; also the act enabling veterans to cash their terminal leave bonds in September, involving billions which will be turned loose in circulation among all segments of the economy; and the Wool Act, which was shorn of its explosive tariff conditions. One of the most dramatic acts was the merger of the army, navy and air forces. Others passed include: to maintain the domestic synthetic rubber producing industry and retain rubber controls; to curtail most of the President's war powers; to extend rent control to March, 1948; to limit Presidential tenure to two terms, to go now to the States for ratification; the Presidential Succession act, providing for the accession to the office of the Speaker of the House in case of death or disability of the President; to retain 3c. postage; to extend the RFC another year; to stimulate the production of zinc,

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they brought forth are recorded with them or if the effect of their use can be discovered without excessive research.

Another type of sales record which deserves permanent preservation is that which evaluates products offered for sale. The selling price list of products may be matched against the cost records kept by the accounting department or it may be used to trace the effect of price cuts or other variations in selling price over the years. Also in this category are the records of competitive products, whether these be comparative analyses of quality or of quantities sold, or if they take the form of statements from field representatives of major problems caused by competition. An application of the use of this type information can be found in determining the sales advantages provided by product improvement; one can see if the money spent in bettering one's output has resulted in greater sales. An unusual use of competitive information may present itself as it did in one company—proving that the concern had its own product in the disputed territory prior to its competitor and thereby effectively overcoming litigation.

The last category of sales records which deserves to be kept forever embraces those documents showing sales efficiency. The summaries of what was sold territorially, by product, in dollars or otherwise, will furnish guidance to future operations which cannot be overestimated. The information supplied closely corresponds with the accounting department's analyses of cost of sales, equally valuable to future custodians of the business in solving marketing problems.

Merely to keep these vitally important papers is not enough. They must be kept in good order, so as not to discourage the study of their contents. They must be catalogued so that their existence is known. They must be correctly filed so that they may be conveniently found. The files which house them must be properly maintained so that when reference to them is necessary, they will be present and not missing in someone's desk.

While storage of permanent documents may be accomplished on the premises only strict observance of maintenance discipline will preserve them from being lost. The personal equation is as great a hazard to paper as is fire, dampness, dust, smoke or rodents. The borrower of a file who fails to return it is responsible for as much loss of valuable records as all other perils combined.

Keeping records orderly and in usable condition is far from cheap. Expensive rent for the most tawdry premises, high prices for the lowest quality filing equipment which can be used are all the order of the day. File maintenance, too, is more costly these days as salaries of capable attendants are at an all-time high. When all these elements of cost are considered, promiscuous saving of records cannot be justified. Selection of those which should be kept permanently should be done with greatest care lest the cost of preserving those of dubious quality make retention both expensive and disorderly. Wading through inconsequential papers to find those of vital use is a serious impediment to the use of archives accumulations. Also, those records which have outlived their usefulness, although previously considered permanent records, should not be allowed to remain to add confusion to the files.

As an example of outmoded records, let us take the following case which came to the attention of the author. These documents related to an excellently compiled analysis of the use of horses on delivery routes, prepared before the advent of the automobile. Had this new means of transportation not been invented, the survey would not have depreciated; as it is, the further preservation of these papers could scarcely be justified.

Although vital papers cost money to preserve, the cost can be converted into profit and records made to pay their way if they are used. Proper sequence of material, sufficient lighting to facilitate study, comfortable chairs in which to sit while gathering information are all unavailing unless there exists the demand for knowledge. When it is realized that the old records are not "dead" but that they contain invaluable data for current use, reference to these documents will become more frequent.

Merchandise which was easy to sell when consumer goods were scarce is already becoming more difficult to move. To sell in a competitive market requires as much knowledge of the past as can be learned, and as production increases, the demand for guidance is bound to become greater. This will, in turn, bring about a change of mind on the part of management concerning the value of old records. Rather than consider these documents mere props to use if litigation arises, the attitude will be to find ways to extract maximum guidance from each page that can be found.

To assure the retention of all papers that will be needed in the future is a job of no small difficulty. Likewise, to effect procedures to assure the elimination of records when their value will expire—thereby preventing accruals of over-age material from cluttering files—is a task calling for much study and analysis. A firm has recently formed to aid in the work of selecting those records which should be preserved. Acting as consultants or as custodian, this new company seeks to appraise the length of time individual records of a client need be retained and sets up both archives files and the necessary machinery to allow for the destruction of documents the moment they are no longer useful. Cataloguing and research of the material stored as well as its orderly maintenance are services offered by this organization.

Whether a concern be small or large, it cannot afford to overlook its past. Achievements and failures are road signs that point the way; no business can disregard its history. The future will insist that management know what has gone before so as to get the most of ideas which will be presented.

TAX BILL

(*Concluded from Page* 81)

copper and lead; to increase by 400 million dollars maximum insurance for the National Housing Administration; to continue crop insurance for wheat, cotton, corn, flax and tobacco; to create a commission to reorganize the executive branch of the government; to create a national science foundation for research; various appropriation bills totaling 28.7 billion dollars. Important legislation which was not enacted, but is still pending somewhere in the great Congressional machine, includes: universal training; the Taft-Ellender-Wagner long-range housing program; the covering of farm and other now-exempt workers by the social security law; the creation of the Fair Employment Practices Commission; compulsory health insurance; an increase in the minimum wage; anti-trust exemption for railroad rate-making—the Bulwinkle Bill, which passed the Senate, but bogged down in the House; the St. Lawrence Seaway development; the Missouri Valley development; the Columbia River Valley Authority; new methods of railroad financing to curb bankruptcy, sponsored by Senator Reed; tax reduction.

The nation's 699 railroads unanimously petitioned the Interstate Commerce Com. for an average of 16 percent increases in freight rates—25 percent in the East and 15 percent in the South and West. If granted, the raise would total eight hundred to nine hundred million dollars to meet 2.3 billion dollars, the aggregate of the increases in costs stemming from additional expenses involved in wages, materials and supplies since 1939. The railroads asked for 35 percent increases in mail pay. The hearing will be resumed on Sept. 30.

The freight car shortage continues without much relief, according to Senators Reed, Tobey and Martin, who called the builders, steel people and railroad operators to Washington for another conference. Lack of steel is said to be the reason for delayed production.

MECHANIZED HANDLING DURING INVENTORY—(*Continued from Page* 31)

on dunnage, several of the following precautions must be followed: 1. To prevent bars from rolling, they should be wrapped around with wire or held in place by uprights. 2. Bars on dunnage should be held in place by blocking with wood at front and rear to prevent bars from rolling or shifting. 3. Bars should be elevated from the floor at least 4 in. and each row of bundles separated by dividers so that the forks of a fork truck can be inserted under or the sling of a hoist slipped around the bars.

Small diameter bars and small quantities of larger bars in pigeon hole racks can be removed for inventory by hand or with the aid of hoists. As bars are taken out of the rack, they should be placed on a wagon so that they can later be lifted off the wagon and onto the scale by a fork truck or hoist. The same precautions that were applicable to bars on dunnage should be used when bars are placed on wagons. The bars should be prevented from rolling and should be elevated from the floor of the truck by blocks of wood or placed on cradles.

Replacing bars in racks is a procedure wherein full use of materials handling devices can and should be made. After a load of bars is weighed and checked for inventory, it should be bundled by wrapping with baling wire, the bundle lifted as a unit on a fork truck or by hoist, and then guided into the rack. If care is exercised, a relatively heavy bundle of bars can be placed in the rack with no great trouble and with the minimum use of manpower.

An inventory for bar stock must be planned with full thought given to materials handling devices and to their integration into all inventory plans.

The primary inventory task for castings and forgings is counting: the primary inventory problem is to arrange parts so that they can be counted easily and correctly. Where large parts are being checked, the problem is not an acute one. However, where small parts must be inventoried, the complications are great. A great deal of time and money is wasted if in an inventory of 2,000 small trunnion blocks each part is counted manually. Counting 2,000 or 20,000 or 200,000 small parts need not take more than a few minutes if a few basic materials handling procedures as indicated below are adopted:

1. Parts can be weighed. Quantity is ascertained by dividing weight of all the pieces by the weight for one piece. However, this procedure can be wasteful if parts must be transferred from skids and containers to the scale. If weight of the container is known, there is no need for rehandling parts. The skid and the parts therein can be lifted onto the scale by a fork truck, gross weight obtained, and net weight found by deducting weight of skid. To insure that weight of container is known, the weight should be painted or stenciled on the skid. This procedure is useful not only during inventory but at all times and in all phases of materials handling.

2. It takes just as long to count twelve eggs as it does to count 144 eggs in twelve dozen-boxes. This is an elementary fact that is overlooked often in inventorying and storing materials. If connecting rods are placed in trays which hold a hundred pieces each and four trays set in one skid, then the count for each skid will be four hundred. This is a valuable procedure and should be followed not only for castings and forgings but for finished parts. Many companies have profited from designing special skids for different parts carried in stock. Two such skids, one designed for large mainshafts and the other for small connecting rods, are illustrated. As shown in the illustration each skid is labeled with its contents. Such a procedure is of inestimable aid during inventory. It can be equally valuable at all other times. Parts are stored in their special containers in which they are delivered to the shop. They remain in the same containers throughout the entire fabrication cycle. This eliminates rehandling of parts, protects parts from the beginning at stores to the end at assembly.

3. Parts that are stored in shelves and bins can be inventoried quickly and correctly if the parts are stacked in equal rows. If this is done, only the rows need be counted. The number of rows is multiplied by the number of castings or forgings in each row and the total number is ascertained. Parts that do not stack readily can be placed in trays or on cut-out forms. Thus, small bushing castings are placed on fiber board which has rows of partially drilled holes. The quantity of holes is indicated on the front of the board. The boards are placed one on top of the other in shelves. Inventory is a simple matter of counting the trays, multiplying by the number in each tray, and subtracting the number of unfilled holes on the top tray. Special containers can be designed for almost all the different castings and forgings carried in stock. These containers have the dual advantage of simplifying inventory and serving as means of protecting parts while they are in process.

The primary problem of inventory for castings and forgings is one of intelligent use of containers and storage facilities plus the integration of materials handling devices. Fork trucks and low-lift and high-lift platform trucks should be available to move skids to counting areas or to break up piles of skids so that bottom containers can be checked.

Inventory for finished parts is always a great headache because of the multiplicity of parts and because of the ever-present danger of damage to parts. Finished parts are usually very expensive and represent a large investment in materials and machine time; hence, care must be taken at all times to eliminate the possibility of damage to parts. The best way to reduce damage due to handling is to reduce handling. In other words, the less that parts are handled during the inventory, the better will be the inventory. Some of the means that can be employed are indicated below:

1. Special containers for castings and forgings can be used for finished parts. Quite often the same containers as was used to store the original casting or forging can be used in finished stores. Thus, finish-machined mainshafts can be stored in the same container.

2. Larger finished parts such as the sucker rods can be stored in groups. Sometimes 80 rods are stored in one special rack. Inventory of these parts is a simple matter of counting the number of racks and multiplying by eighty.

3. New shipments of finished parts received from the plant or from outside vendors can be sealed within bins if old stock is still available. The count of the sealed lot is taken from the receiving slip and noted on the bin. Thus, during inventory the sealed lot need not be touched. The quantity in the bin is ascertained from the tag on the bin.

Materials handling should be one of the first factors to be considered when an inventory is planned. If a sound foundation of materials handling is had, the other problems of inventory will be less difficult and more easily solved.

MARKETING VS. PHYSICAL

(*Concluded from Page 79*)

studied intelligently. It is easy to talk about manhour costing, unit costs and standards on the assumption that because they can be used on production they can also be used on distribution. But as this article shows, there are far more variants and intangibles in distribution than in production and before satisfactory economies can be effected, management must have a comprehensive picture of the higgledy-piggledy construction of the spread between production cost and consumer price.

From the foregoing, one may derive three conclusions:

1. Some managements can effect greater economies on handling and marketing cost than others.

2. Distribution has many variants, and before a management can cost intelligently, it must know these variants.

3. Some managements can effect substantial economies, but they will never reach the consumer.

the furniture is unloaded at the warehouse receiving platform. The reason for making the inventory at the warehouse is that it is said to be impossible to do so accurately until we get the goods on our own dock. That is a lot of poppycock, and I have used it as an argument many hundreds of times to customers when they have questioned the issuance of warehouse receipts. The customer may not always be right, but here is one time he is. We warehousemen should be obliged to give a receipt to our customers when we take their furniture, not the next day or even later in the same day. Every warehouseman that I know of uses the same argument to put off the customer when he wants his receipt; think of all the things that can happen to a lot of furniture between the time you pick it up and the time you list it. Actually the reason that we do not inventory the goods at point of pickup is that we still have not found a quick and easy way to do it. Not enough thought has been put into the problem.

Let us design and build a portable numbering machine which will print a prefix lot number and a consecutive piece number on duplicate strips of tape. One section of this tape should be so that the item could be filled in at the time the article was taken from the residence. In this way the condition would be noted when we actually receive it. The second half of this tape should be some adhesive which can be easily applied to all kinds of materials. Perhaps a celulose tape would do the trick. The numbering machine should simultaneously print the same lot and piece numbers on the adhesive tape and on a duplicate paper tape. One copy of the paper tape could then act as a receipt to the customer for the goods, and the other copy would be an acknowledgement by the customer as to the condition of each item. Such a system can be devised, and with an idea to work on, someone can build the machine. The household goods warehouseman would at last be able to give his customer a receipt which amounted to something.

The next problem is that of the design and use of standard containers for household goods. True, household goods come in a multitude of sizes and shapes, but it is perfectly possible to construct lightweight containers to hold them. The average density is only about six lb. per cubic ft., so the choice of materials which can be used to make containers is very wide. The form which comes to my mind most readily is a container of sufficient capacity to hold 100 to 200 cu. ft. of goods. This container should be built so that it can be handled on and off the van with a fork lift truck. It could be taken to the customer's residence on any standard van in use today and there loaded for storage. The inventorying should be done at the residence, and the goods protected in the container with some comparatively cheap packing material. There are many of these materials manufactured today, such as Kimpac and Tufflex. The containers could be made so that they are practically air tight, and equipped with a valve which would permit filling with DDT or some similar insecticide to kill off any wild life which might happen to be in the furniture. Think of the advantage of being able to tell your customers honestly that their goods would be stored in individual mothproof and dustproof containers.

The second idea I have for containers is one primarily for warehouses which are now built up into separate storage rooms. This is for a container which is adjustable in one or two dimensions. These could be so made that they would nest together to conserve space when not in use. Four or five standard sizes could be made from about three up to 35 cu. ft. in size. They should also be made to be handled with a fork truck. Their principal advantage would be that they could be taken right inside the customer's residence, and there loaded before his eyes.

When proper methods of inventorying are devised and proper unit containers are built, we will be a big step forward in efficient handling of the goods entrusted to our care. We owe it to the public and to ourselves. Just think of the enormous amount of warehouse labor which can be saved, and think of the reduction of liability on the part of the warehouseman.

The next problem is one of transportation to and from the warehouse. This is a materials handling problem, but here are some thoughts on the subject. The transportation of household goods is divided into four parts. The first division is getting the goods out of or into the residence; the second loading or unloading the van; the third van transportation; and the fourth receipt by or delivery from the warehouse. All four of these divisions could be an individual study. All four of them should be a challenge to the

Number of handling operations of the 47 items in a 400 cu. ft. lot (Containers 1-50, 6-35, 1-25, 5-15, 4-10 cu. ft.)

Handling Operation	Present Practice	Using 4 100 cu. ft. Containers loaded at van	Using 17 unit Containers loaded in house
House to Van	47	47	17
Van or Container Loading	47	47	47
Van Unloading	47	4	17
Van to Checking Floor	47	...	...
Checking Floor to Warehouse Elevator	47	...	...
Elevator to Storage Room	47	...	...
Storing	47	4	17
Unstoring	47	4	17
Storage Room to Elevator	47	...	...
Warehouse Elevator to Checking Floor	47	...	...
Checking Floor to Van	47	...	...
Van Loading	47	4	17
Van or Container Unloading	47	47	47
Van to House	47	47	17
Total	658	204	196

materials handling experts. The sad truth of the matter is that none of the experts have seen fit to accept the challenge. I can think of only two reasons why this field has been neglected. The first is that they do not believe there is a sufficient volume of business involved, and the second is that they are afraid to tackle the problem because it is too complicated. As to volume there are 1,600 household goods warehouses listed in the D and W Directory. The average size of these warehouses is about 400,000 cu. ft. The average lot offered for storage is about 400 cu. ft., so we can anticipate a volume of about 1,000 separate accounts. Is that volume worth thinking about?

As to transportation, each one of these accounts eventually has to have two trips on the van. What comes into storage must go out. At present we handle each individual item in each account a minimum of fourteen times, and in every lot there are many items which are handled from one to ten times in addition to the basic fourteen. You don't believe me. Count 'em. They're listed below.

The average 400 cu. ft. storage lot is made up of 47 items. Following is a table listing the minimum number of handling operations we now are obliged to perform on each item, and the number of operations which would be required if we could adopt unit containers for household goods.

By using unit containers there will be great saving in the number of handling operations which are now necessary in the warehouse. If these containers can be made so that they can be brought into the customer's home there will be a further saving. This is a direct challenge to the materials handling experts. These savings can and must be effected. We owe it to ourselves and to the public that we serve.

The problem of getting unit containers in and out of residences is one which must be given a great deal of thought. It will also require a lot of experimentation. Here are two screwy ideas. I'm not afraid to offer them because often it is the screwy idea which suggests the practical one. First—how about a channel monorail which can be laid on stairs, halls and walks? It will, of course, have to be adjustable for length and have curved sections to take the turns on the stairs. With this a single-wheel dolly could be clamped on the container like a roller skate. The combination of the two would make the unit container a portable object right from the time it left the van until it was returned and the skate taken off it. One man could handle any container, even up to 50 cu. ft. in size, from the point where it was loaded to the monorail, up or down the stairs, and out to the van. Second—a conveyor cable adjustable for length could be fastened to supports which fit inside a window frame or doorway, leading directly into the van. The cable should be motor driven from the van, with controls at either end. The unit containers could be attached to the cable by means of some sort of a grapple and hauled up or down to the van with no back breaking hand labor. I've a dozen other ideas on this score, but that's enough dreaming about it now.

every shipment should be carefully weighed. If this is infeasible, the use of estimated weights will expedite distribution considerably. Estimated weights should be determined by a thorough and complete check of a number of packages of an individual commodity to arrive at truly representative average weights.

The assistance and guidance of carriers' weighing and inspection bureaus should be utilized to the fullest extent and wherever possible, agreement should be reached with this bureau so that delay occurring on the part of the shipper and carrier in weighing each shipment will be completely eliminated. This is particularly important on carload shipments. It is the carriers' duty to scale shipments and determine the accuracy of weights, but during the press of business personnel may occasionally be forced to substitute an estimated weight which may prove very costly to the shipper or his customer. When estimated weights are used, care should be taken to see that a new merchandise package, shipping container or material does not affect the previously arrived at average weight.

Proper bill of lading description in accordance with proper classification identification provides the means of readily determining the rate basis to be used, thus eliminating the delay and expense involved in controversy and the necessity of furnishing documents required to establish proper descriptive terms. The traffic department should closely watch the descriptions used on bills of lading and should acquaint all concerned with the proper terms to use. Whenever possible this information should be furnished before shipments are billed.

In our Los Angeles branch distribution center we have two distinct types of service operations. They are the so-called wholesale distribution and the retail deliveries to our company-owned stores. In our wholesale deliveries, service must receive first consideration so we use common and contract carriers exclusively both for local and distance hauling. From Los Angeles we service customers in Arizona, California, Colorado, Nevada, New Mexico, Utah and El Paso, Texas.

Since the shipping and service requirements of our customers vary according to location and special needs we must, of course, tailor our deliveries to suit these needs. The cost of using our own trucks often would be excessive since we could not maintain regular full load delivery service schedules. Distant shipments would necessitate a long empty back haul nearly as expensive as the original fully loaded move. By using common or contract trucks we can start a shipment of any weight or size forward at any period of the day, and in many cases delivery will be made the same day.

To maintain a high type of service, constant check of the performance of rail and other transport companies must be done regularly. The policing of transportation costs involves considerable detail work. Some commodities benefit from lower rates when shipped by rail whereas others benefit when shipped by other carriers. In California, for instance, l.c.l. and l.t.l. rates are based on minimum weights of 500, 2,000, 4,000, 10,000 and 20,000 lb. The higher the minimum weights used the lower the rate will be.

In connection with multiple shipments to one consignee at various locations and cities, we can secure the benefit of a rate applying to the most distant point at the total weight through the use of a master bill of lading to cover all of the individual shipments forwarded at the same time. This is accomplished at a very nominal split delivery cost, resulting in considerable savings to us and without interference to necessary service.

To systematically and easily protect our costs in this operation, we maintain a rate and route card index system which provides one or more cards for each destination served. These cards show all commodities shipped to the individual destination, the service schedule, the rates for the various merchandise at all minimum weights charged by each type of carrier. The identity of the carrier or carriers serving each point is also shown.

Changes in rates, routes and service are immediately entered on our cards with the result that our index always is up to date. Reference to it enables us to determine immediately the best carrier for a contemplated shipment. The system also enables us to quickly audit all freight bills by eliminating the necessity for the constant and costly checking of tariffs and routing guides.

In our retail operations (delivery to company-owned stores) we use our own trucks exclusively for delivery within a 120 mile radius. Through the use of our trucks we are not compelled to ship in the containers of the type required by carriers' tariffs. Our costs have been reduced by the use of large canvas shipping baskets into which we pack quantities of goods required by our stores without regard as to their particular carrier tariff classification. The baskets are lightweight, require little space and, when empty, can be easily nested for the return trip, to be used repeatedly for other shipments.

In this phase of our operations we can control the full loading of our equipment by scheduling daily, semi-weekly or weekly deliveries to our stores according to their stock requirements. We try, wherever possible, to send our trucks in a circular route as this method tends to reduce empty mileage hauls.

The important thing to consider in private fleet operations is to schedule distribution so as to provide adequate service at the lowest overall expense. Proper distribution reduces the cost of the article to the consumer and helps to protect the necessary margin of profit.

CONTROL SYSTEMS IN PACKING—(*Concluded from Page 73*)

activity is large enough, it may justify a shop office with an employee serving partly as clerk and partly as dispatcher. He receives and writes up instructions; prepares work-orders from verbal sources; polices shipping records, destinations and other case markings with view to proper stencilling and assists Bill by requisitioning needed packing boxes and supplies.

However, if the activity is not unusually large, Bill will spend far less time and energy in adhering to a simple system of control than in trying to keep tab on all activities by the superhuman method of personal contact and recollection. The "system" in effect moves Bill upward from a point of being swamped by the detail of his responsibility to where he can administer effectively no matter how sizable the volume.

Bill has need for another control. That is, quality or technical guidance. (See Figure 3). The execution of a proper pack within an adequate container quite often reaches into highly technical considerations. The number of braces or amount of reinforcing may decide if a shipment will arrive safely or not. Interior blocking or cushioning cannot be a matter of guesswork. Many work orders must be accompanied by a technical specification. Sometimes Bill must select the specification; at all times, it is his responsibility to see that there is complete compliance.

Where there are standard or uniform packs already tested and approved the specific method of packing need only be a short reference on the work order. Thus, "Two parts #317; pack for Rail Shipment; use Specification C." Or, "12 Frames, packed in Shipping Boxes, #134," etc.

Where there is no precedence for packing, either Bill or the packaging engineer prepares in the case of a complex job a detailed sketch or diagram together with specifications covering every phase of the cargo preparation. On simpler jobs Bill or the packaging engineer may resort to a detailed instruction sheet outlining the manner in which a job is to be handled. But complex or not, the nature of the job should be pinned to the work order sheet for several reasons. Should there be failure of the shipping container in transit or damage to the contents, it is important to know how the shipment was prepared. Another reason is that in event of necessity to pack similar goods in future, with the diagram in the records, it is not necessary to start all over again.

There is still another technical situation which arises in every packing room. This relates to those jobs in which some experimentation must be done in order to arrive at the best possible pack. Bill may want to delegate the responsibility to a competent subordinate or he may want to be present and assist in reaching the decision as to best manner of handling. Of course, again, once the material is satisfactorily packed, time should be taken to draw up a specific technical reference against the time the same problem will again arise.

The system evolved for Bill will not fit exactly every situation. Each system of control must necessarily be made to conform to the situation and the practice of the packing room involved. No system should be superimposed upon an operation merely for the sake of adding to the burden. But essentially, if it results in giving the man in charge better control, and brings about a healthy operational procedure, then there is definite need for following a planned system in cargo preparation.

FIELD WAREHOUSING—(*Concluded from Page* 62)

items and raw materials are inducements to thievery, especially where regular audits of stock on hand are not made. It has been shown that inventory clerks in some cases have taken a few small items for home use, and when nothing has been said or done about it, have continued this practice until a sizable and costly shortage develops.

Not so long ago, a large mail order house operating branch stores in many cities found that one of their stores had developed a large shortage in tires, radios and other items. Detectives investigated and discovered that the thieves had reached the stage where buyers of stolen goods actually conducted their business on the premises. The thieves went to jail, but the company suffered a severe loss, with little if any recovery.

The practice of using field warehousing as an inventory control system is gaining widespread use. As explained above, custodians from the staff of the company using the service are usually employed as warehousemen and bonded in a large sum. When warehouse receipts have been issued, the warehouseman assumes the responsibility and liability to the holder for the goods specified on the receipt. Thus, where a field warehouse is set up solely to control inventory, the warehouse receipts are issued in the name of the company hiring the warehouseman. Audits by experienced members of the warehouseman's staff are made frequently, sometimes as often as once a month. Any shortages or discrepancies discovered are immediately adjusted. This system of control proved itself during the war years. A secret of its success might lie in the facts that the custodians usually have great respect for their positions, they are heavily bonded, and they can look for check-ups of their warehouse at unexpected times. Shortages have occurred, but the greater percentage of them have been errors in records, where the wrong item was delivered.

The charge for this service is very reasonable. Since the warehouseman usually installs his own inventory ledger control system, the necessity for the company's keeping an inventory record is eliminated. Further, most companies using this system discontinue the costly practice of making internal audits, since the warehouseman is liable to them as warehouse receipt holders for the merchandise. As can be readily seen, the savings involved in most cases more than pay for the operation.

Thus field warehousing can be seen to aid in the solving of financing and inventory control problems. The increasing use of the system is proof of this.

DEATH ON WHEELS—(*Concluded from Page* 61)

tion when the tank door opens about every two hours. The slug of eleven pallets weighing about 22 tons rolls out of the tank by gravity; another slug rolls in behind it. The doors close and the gas is pumped in. In only a few minutes another slug is built up on the approach conveyor. A high lift fork truck of about three-ton capacity runs up to the exit section of the conveyor, picks up the load directly off the rollers and takes it either back to rail cars or off to the warehouse where it is piled still on a pallet to await shipment at a later date. In either case, a single fork truck and its operator handle the two-ton load. The speed of the process is limited only by the time required for exposing the cotton to gas.

This continuous operation eliminates much rehandling of bales: piling and unpiling, on and off of hand trucks, up and down on chain falls.

Prior to this installation, no operation could be located which moved comparable unit loads on a gravity conveyor plan. Considerable ingenuity was needed to solve the new problems which arose. A special braking device was developed to stop the heavy loads which rolled along the conveyor under their own momentum. The rollers were placed unusually close together so they would not catch the slats which are spaced every six inches on the bottoms of the standard ship pallet. The hinged sections at the ends of the tank were raised and lowered with precision fitting. Above all, the pitch of the conveyor was set with exactness so that in spite of some variation in weights, the loads would start themselves, yet stop easily.

The results of this study and of the consequent changeover have been so outstanding that Wiggin Terminals are now making plans to convert additional tanks. In this way, a smoother more efficient service is given to customers, based on the latest scientific developments.

The success of this installation proves again that the most complex materials handling jobs can be solved by applying the latest equipment and methods. But, there must be a progressive management looking toward smoother performance, better labor relations, and improved service to customers.

This Month's Cover

THIS month's cover is illustrative of this month's theme, Systems and Equipment in Distribution, and it symbolizes the trends and practical possibilities of the future . . In it, our artist has sought to foreshadow the evolution of today's equipment into more efficient and streamlined form—not only of that equipment used in the handling of materials but of all equipment used in distribution—and to suggest, through the Ledger in the foreground, the means of recording the rewards (betterment in human living) to accrue through the use of the better systems and better equipment of tomorrow . . . America's productive and inventive genius is not forgetful of the obligations implied in the use of accelerated efficiency nor unmindful of the fact that only when the economies individually resulting are passed on in the form of lower prices . . . in better products . . . or in some other form . . can America attain her goal of full productivity.

Public Warehouse Section

Warehousing is an integral part of distribution in several ways. Public warehouses are not merely depositories for the safeguarding of personal effects or industrial commodities; many are equipped to perform a wide range of services in addition to storage. Among these services are:

Bottling, boxing, financing, fumigating, grading, handling, hauling, labeling, motor transportation, mothproofing, moving, operation of public truck scales, quick-freeze facilities, rental of space for manufacturing, offices and showrooms, rigging, sales representation, sample distribution, sorting, stevedoring and various other functions for efficient and economical distribution.

This special advertising section of public warehousing has been consolidated for ready reference and maximum utility. It includes merchandise, refrigerated, household goods and field warehouses. For shippers' convenience, states, cities and firms have been arranged alphabetically.

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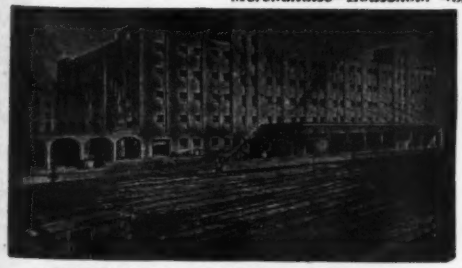

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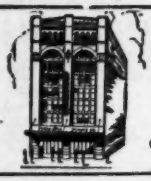

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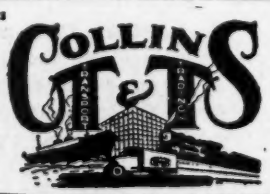

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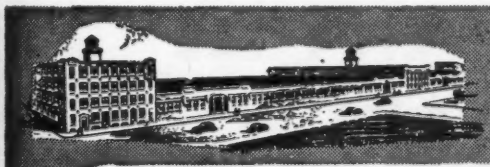

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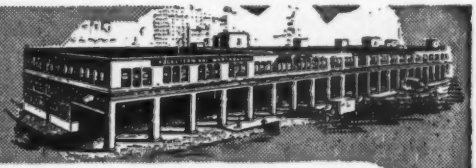

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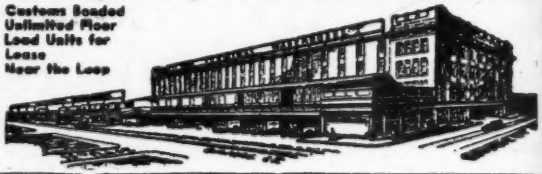

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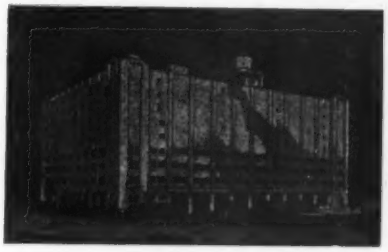

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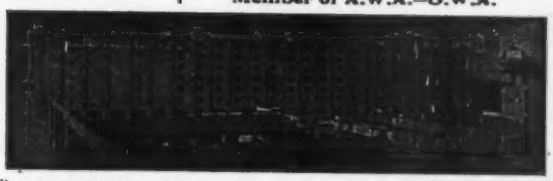

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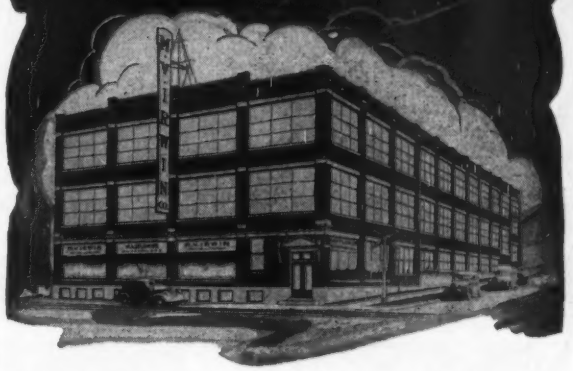

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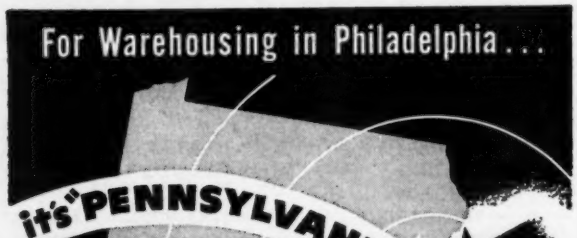

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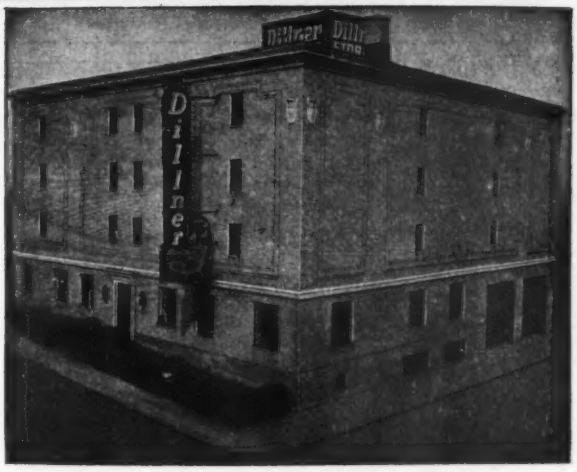

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Long Distance Operators
Member: A.W.A.-A.C.W.-N.F.W.A.-S.W.T.A.-T.M.T
Agents—Allied Van Lines

BEAUMONT, TEXAS

TEXAS STORAGE COMPANY

656 NECHES STREET — BEAUMONT, TEXAS

Merchandise and Household Goods
Warehouse, Concrete Construction
30,000 Sq. Ft. Distribution of Pool Cars
Transfer Household Goods
Agent for A.V.L. — Member of N.F.W.A.—S.W.&T.A.

CORPUS CHRISTI, TEXAS

CORPUS CHRISTI WAREHOUSE AND STORAGE COMPANY

Located AT PORT SITE
adjacent to docks NAVIGATION DISTRICT NO. 1
Storage — Distribution — Drayage
MERCHANDISE EXCLUSIVELY
96,400 Sq. Ft. Sprinklered — Low Insurance Rates
Member: Southwest Warehouse and Transformen's Ass'n

CORPUS CHRISTI, TEXAS

Robinson Warehouse & Storage Co.

General Offices: 1500 N. Broadway, Corpus Christi
Specialists in
General Merchandise Storage—Pool Car Distribution
Public Bonded Warehouses at Alice, Corpus Christi, Harlingen, Laredo, McAllen and Victoria . . . Daily and overnight common carrier Motor Freight Service to Houston, San Antonio, Austin, Laredo and Rio Grande Valley, serving all intermediate points.
Expert Handling: Inquiries Invited

DALLAS, TEXAS

GUS. K. WEATHERRED, *Pres.*
C. E. BRADLEY, *Vice-Pres.*

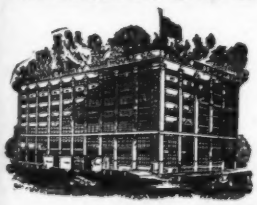
DALLAS TRANSFER AND TERMINAL WAREHOUSE CO.

ESTABLISHED 1875
2nd & 4th Units Santa Fe Building, Dallas 2, Texas
Modern Fireproof Construction—Office, Display, Manufacturers, and Warehouse Space

Operators of the Lone Star Package Car Company (Dallas and Fort Worth Divisions)
T. & N. T. Motor Freight Line
Agents for Allied Van Lines, Inc.
MEMBERS A.W.A., N.F.W.A., American Chain of Warehouses, Southwest Warehouse & Transfermen's Assn., Rotary Club

DALLAS, TEXAS

INTERSTATE-TRINITY WAREHOUSE COMPANY



301 North Market St., Dallas 2

Merchandise Storage and Distribution
Household Goods Storage
Moving & Packing
Long Distance Hauling

R. E. ABERNATHY, *Pres.*
J. A. METZGER, *Vice-Pres.*

* Represented by ALLIED DISTRIBUTION INC.
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NEW YORK 18, 11 WEST 42ND ST. Penn.6-0967

EL PASO, TEXAS — *"Bankers of Merchandise" "Service With Security"*

International Warehouse Co., Inc.

1601 Magoffin Ave. — Inc. in 1920 — El Paso, Texas
Lowest Content Insurance Rate
Fireproof Storage of Household Goods, Autos & Merchandise. State and Customs Bonded. Private Trackage—T. & P. and So. Pac. Rys.
Pool Car Distribution—Motor Truck Service.
Members—N.F.W.A.—S.W.T.A.—Agents for AVL.

* Represented by
The Distributors' News Group
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FORT WORTH, TEXAS — In Fort Worth It's Binyon-O'Keefe

MERCHANDISE STORING—POOL CAR DISTRIBUTION
Our modern Centrally located warehouse is completely equipped to serve you with over 200,000 sq. ft. of merchandise and household storage space.
MOVING—STORAGE—PACKING—SHIPPING

Since 1875 — **BINYON-O'KEEFE STORAGE CO.** — Since 1875
800 Calhoun St., Fort Worth 1
Associated with Distribution Service, Inc.

FORT WORTH, TEXAS

Storage, Cartage, Pool Car Distribution

O. K. Warehouse Co., Inc.

255 W. 15th St., Fort Worth 1, Tex.
Agents, North American Van Lines, Inc.

HOUSTON, TEXAS — *Member of A. W. A. — S. W. & T. A.*

BUFFALO WAREHOUSE COMPANY

No. 1 MAIN STREET — HOUSTON 2, TEXAS
Located in the heart of the jobbing district
MERCHANDISE STORAGE—POOL CAR DISTRIBUTION
Lowest Insurance Rates — Automatic Sprinkler — Watchman

HOUSTON, TEXAS

POOL CARS OUR SPECIALTY

FEDERAL WAREHOUSE CO.

915 N. SAN JACINTO STREET
HOUSTON 2

HOUSTON, TEXAS

Better Warehousing in HOUSTON

We operate a modern low insurance rate warehouse in the center of the wholesale, jobber, rail and truck terminal district. Most conveniently located for interior jobbers' trucks; well trained personnel; cooler space.

HOUSTON CENTRAL WAREHOUSE CO.
Commerce and San Jacinto — Houston 1, Texas

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HOUSTON, TEXAS

Houston Terminal Warehouse & Cold Storage Company

701 No. SAN JACINTO ST., HOUSTON 2
General Storage — Cold Storage — U. S. Custom Bonded
A. D. T. Service — Pool Car Distribution
Office Space — Display Space — Parking Space
Lowest Insurance Rate
New York Representative Phone PLaza 3-1235 — *Chicago Representative* Phone Harrison 1496

HOUSTON, TEXAS

AT HOUSTON

Receiving . . . .
Weighing . . . .
Sampling . . . .
Warehousing . .
Forwarding . .

. . . also Wharfingers offering complete Shipside Services with berthing space for eight steamers.

HOUSTON WHARF CO.

(Long Reach Docks)
OWNED AND OPERATED BY GULF ATLANTIC WAREHOUSE CO.
P. O. Box 2588 — Houston 1, Texas

HOUSTON, TEXAS

PATRICK TRANSFER & STORAGE CO.

1117 VINE STREET, HOUSTON 2
Merchandise and Household Goods Storage
Pool Car Distribution
Sprinklered—A.D.T. Watchmen
Shipside and Uptown Warehouses
Operators—Houston Division
Lone Star Package Car Co.
Member of N. F. W. A. — State and Local Assn's.

HOUSTON, TEXAS

W. E. FAIN, FOUNDER
W. T. FAIN, MANAGER

TEXAS WAREHOUSE COMPANY

Established 1901
Forty-four Years
Under Same Continuous Management
MERCHANDISE EXCLUSIVELY
Pool Car Distribution — Sprinklered Throughout
A.D.T. Supervised Service

HOUSTON, TEXAS

UNION Transfer & Storage Co.

1113 Vine St. P.O. Box 305, Houston 1
Forwarding and Distributing
MERCHANDISE STORAGE
Warehouses Sprinklered Throughout
Supervised by A. D. T. Service.
SERVICE THAT COUNTS

HOUSTON, TEXAS

UNIVERSAL TERMINAL WAREHOUSE CO.

1002-1008 Washington Ave., Houston
Merchandise Storage — Pool Car Distribution — Drayage Service
A.D.T. Central Station Automatic Supervisory
Sprinkler, Waterflow, and Fire Alarm Service
Watchmen, U. S. Customs Bonded, Office Space
Represented in all principal cities by
UNIVERSAL CARLOADING & DISTRIBUTING COMPANY
Division of
UNITED STATES FREIGHT CO.
Members State and Local Associations

HOUSTON, TEXAS

BENJ. S. HURWITZ, *Pres.*

WESTHEIMER Transfer and Storage Co., Inc.

2205 McKinney Ave., Houston 1
OVER 50 YEARS IN HOUSTON
Merchandise & Household Goods Storage—Pool Car Distribution—
Lift Van Service—20 car lengths of trackage.
Fireproof Warehouses—A.D.T. Automatic Fire and Burglary Protection
Agent for Allied Van Lines, Inc.
Members N.F.W.A.
State and Local Assn.

LUBBOCK, TEXAS

P. O. Drawer 1680.

WEST TEXAS WAREHOUSE COMPANY

Licensed and Bonded Warehouse
250,000 sq. ft. sprinklered space.
25-Car spot on Santa Fe RR.
Concrete floors, modern equipment.
Truck Loading Docks. Space for lease.
MEMBERS SOUTHWEST WAREHOUSE & TRANSFERMEN'S ASS'N

SAN ANTONIO, TEXAS

Merchandise **MERCHANTS** Household Goods

TRANSFER & STORAGE CO.

Merchants & Transfer Sts., San Antonio 6
Complete Storage and Distribution Service
Over 50 years of satisfactory service
Member of A.W.A.—N.F.W.A.—S.W.A.

SAN ANTONIO, TEXAS

Agent for Allied Van Lines, Inc.

Scobey Fireproof Storage Co.

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HOUSEHOLD - MERCHANDISE - COLD STORAGE
CARTAGE
DISTRIBUTION
INSURANCE RATE - - - 10c
Members of 4 Leading Associations

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MEMBER MAYFLOWER WAREHOUSEMEN'S ASSOCIATION

SOUTHERN TRANSFER & STORAGE CO.

P. O. BOX 4097, STA. A, SAN ANTONIO 7
Specialists in Merchandise Distribution
FIREPROOF CONSTRUCTION
BONDED STORAGE

TYLER, TEXAS

IRA P. HILDEBRAND, *Owner & Manager*

HILDEBRAND WAREHOUSE COMPANY

Bonded under the Laws of Texas
General Storage and Distribution from the Center of East Texas. Specializing in Pool Car Distribution and Merchandise Warehousing

OGDEN, UTAH

MEMBER OF A.W.A.

WESTERN GATEWAY STORAGE CO.

GENERAL WAREHOUSING
POOL CAR DISTRIBUTION
MERCHANDISE AND COLD STORAGE

SALT LAKE CITY, UTAH

CENTRAL WAREHOUSE

520 West 2nd South St., Salt Lake City 1
Fireproof *Sprinklered*
Insurance rate 18c. Merchandise Storage
Pool Car Distribution. Office Facilities
Member A. W. A.

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Merchandise Storage and Distribution

Over 1,000,000 cubic feet reinforced Concrete Sprinklered Space
Insurance Rate 11 Cents
CORNWALL WAREHOUSE CO.
153 West 2nd South St., Salt Lake City 1
Represented by
DISTRIBUTION SERVICE, INC.
New York - Chicago - San Francisco

SALT LAKE CITY, UTAH

Storage—Pool Car Distribution

KEYSER MOVING AND STORAGE CO.

328 West 2nd South, Salt Lake City 1 Est. 1910
72,000 sq. ft. space. Reinforced concrete and brick. Dividded, accessible, and central location. UP. spur with free switching from or to other lines. P-U&D service rail or truck. Systematic delivery service twice daily. 90% Co-Ins. rate 19½¢ per $100.00. A.D.T. automatic burglar and fire protection. Office and desk space available.
Member AWA—UVL—UWA—AWI

SALT LAKE CITY, UTAH *"This is the Place"*

FOR BETTER SERVICE
SECURITY STORAGE & COMMISSION CO.

230 S. 4TH WEST ST., SALT LAKE CITY 1
Over 39 Years' Experience
Merchandise Warehousing - Distribution
Sprinklered Building - Complete Facilities
Lowest Insurance Cost - A.D.T. Watchman Service
Office Accommodations - Display Space
Represented by American Chain of Warehouses, Inc.
New York (17) 250 Park Ave. — Chicago (4) 33 W. Jackson Blvd.
MEMBER: A.W.A.—U.W.A.

NORFOLK, VA.

MEMBER MAYFLOWER WAREHOUSEMEN'S ASSOCIATION

Household • Automobile Storage • Merchandise

NEW-BELL STORAGE CORPORATION

22nd St. & Monticello Ave.
NORFOLK 10, VIRGINIA
MODERN SPRINKLER EQUIPPED WAREHOUSE
50,000 SQUARE FEET PRIVATE RAIL SIDING
Lowest Insurance Rate in Norfolk. Pool Car Distribution
WE SPECIALIZE IN MERCHANDISE STORAGE AND DISTRIBUTION
AGENTS AERO MAYFLOWER TRANSIT COMPANY
Member M.W.A. & A.T.A.

NORFOLK, VA.

STORE and DISTRIBUTE
IN THE PROSPEROUS TIDEWATER AREA THRU PRUDENTIAL

HOUSEHOLD GOODS MOVED, PACKED, SHIPPED
POOL CAR TRANSFER TRUCKING SERVICE
LARGE FIREPROOF WAREHOUSE
OPEN YARD STORAGE AVAILABLE
LOCATED ON N. & W. SIDING

PRUDENTIAL STORAGE and WAREHOUSE COMPANY

Billings St. at N. & W. Ry.
P. O. Drawer 1859 — Telephone 22481 or 54008

NORFOLK, VA.

Fine Warehousing Since 1914

Security Storage and Van Co.

500-530 FRONT STREET
COLLECTIONS • POOL CARS • DISTRIBUTION
MOTOR VAN AND LIFT VAN SERVICE
Member—Nat'l. F.W.A.—Allied Van Lines

NORFOLK, VA. Established 1892

SOUTHGATE STORAGE COMPANY, Inc.

239 Tazewell St., Norfolk 10

MEMBER: A.C.W. A.W.A. S.W.A. U.S.C. of C.

For economical storage and distribution you will want to know more about our individualized services. Our fireproof warehouses are in the Southgate Terminal, on the waterfront and in the center of Norfolk's wholesale district. Served by all rail, water and motor lines.

Write for Booklet—"7 POINT DISTRIBUTION"

RICHMOND, VA. 69 Years of Uninterrupted and Expert Service

BROOKS TRANSFER and STORAGE CO., Inc.

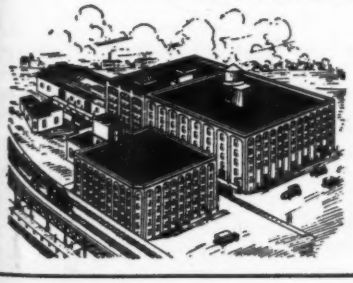
1224 W. Broad Street, Richmond 3, Va.

Three Fireproof Storage Warehouses—810,000 Cubic Feet Floor Space—Automatic Sprinkler System—Low Insurance Rates—Careful Attention to Storage—Packing and Shipping of Household Goods—Private Railroad Siding—Pool Car Distribution—Motor Van Service to All States—Freight Truck Line.
Member of N. F. W. A. — A. T. A.

RICHMOND, VA. *Established 1908*

VIRGINIA BONDED WAREHOUSE CORPORATION

1709 E. CARY ST., RICHMOND 3, VA.



160,000 SQ. FT. SPACE
BUILDINGS SPRINKLERED
U. S. BONDED & PUBLIC WAREHOUSES
MERCHANDISE STORAGE & DISTRIBUTION
INSURANCE RATES 20c PER $100 PER YEAR

ROANOKE, VA.

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Finance and Storage
Pool Car Distributors
General Merchandise Storage
421-25 EAST CAMPBELL AVE.
ROANOKE 7, VIRGINIA

ROANOKE, VA.

ROANOKE PUBLIC WAREHOUSE

869 W. Salem Ave., W., Roanoke 5

Capacity 500 Cars — Automatic Sprinkler
Private Railroad Siding — Accurate Accounting

We make a Specialty of Storage and Pool Car Distribution for Agents, Brokers and General Merchandise Houses.
Member of American Chain of Warehouses

SEATTLE, WASH.

EYRES TRANSFER & WAREHOUSE CO.

2203 First Ave., So., Seattle 4

Cartage — Distribution — Storage

Highest financial rating; new fireproof; A.D.T. sprinklered buildings; lowest insurance rate (18.2c); modern equipment.

SEATTLE, WASH. J. R. GOODFELLOW, *Pres.*

OLYMPIC WAREHOUSE & COLD STORAGE CO.

MERCHANDISE STORAGE & DISTRIBUTION

1203 Western Avenue — Seattle 1, Wash.

Cold Storage — Dry Storage — Rentals — Pool Car Distribution — Office Rentals
Fireproof, brick const.; Sprinkler system; Insurance rate: 13.8c. Siding connects with all rail lines.
Bonded U. S. Customs: State License No. 2
Member of A.W.A. (C.S.) Wash. State Whsmn. Assn.

SEATTLE, WASH. Seattle's One-Stop Warehousing Service!

UNITED Merchandise Storage & Distribution — U.S. Customs—Bonded Stores
CULBERTSON Seattle's Exclusive Furniture Repository

SEATTLE TERMINALS, Inc.

Executive Offices: 1017 S. 40th St., Seattle 8

V. G. Culbertson, President — Wm. T. Laube, Jr., Secretary

SEATTLE, WASH. Lloyd X. Coder, Pres.-Mgr. Est. 1919

SYSTEM Transfer & Storage Co.

2601-11 Second Avenue, Seattle 1

Warehousemen & Distributors of
General Merchandise and Household Goods
Office and Desk Space—Low Insurance Rates
Member—A.W.A.—W.S.W.A.—S.T.O.A.

SEATTLE, WASH.

TAYLOR-EDWARDS WAREHOUSE & TRANSFER CO., INC.

1020 Fourth Avenue South — Seattle 4
WAREHOUSING • DISTRIBUTION • TRUCKING
Represented By
DISTRIBUTION SERVICE, INC.
New York—Chicago—San Francisco

SPOKANE, WASH. P. C. HINTON, Owner

RIVERSIDE WAREHOUSES, INC.

E. 41 Gray Avenue, Spokane, 8

Telephone, Office and Stenographic Service

Specialize in serving food and related industries; pool car distribution; 44 trucks and tractors with semi-trailers. New, up-to-date, modern warehouse equipped with forklift tractors.

DISTRIBUTION BRIEFS

A NEW CLUB . . . Formation of the Western Motor Carriers Assn., an organization of motor carriers in 11 western states, achieved through planning carried on by the industry during the past year, was announced by Ray H. Culbertson, secretary-manager of the Association. Headquarters are in San Francisco. [Haskell]

o o o

NEW PERSONNEL . . . As a result of the West Coast's increased industrial demands for Mobilift Corp., a new San Francisco office has been opened with R. M. (Dick) Lewis as manager. In Mobilift's Atlanta, Ga., office, T. H. Skeel is replacing former manager E. J. Sell.

Mobilift's manufacturers, previously known as the General Equipment Co., are changing their name to Mobilift Corp.

o o o

A NEW WAREHOUSE . . . United Moving & Storage Co., Fort Wayne, has started construction on the first floor of an $80,000 three-story warehouse building adjacent to the present offices of the long-distance moving firm. The second and third floors will be completed by the end of this year. The building will be 50 x 148 ft. in area, of brick and cement construction and it will be the first warehouse in the city devoted exclusively to storage of household furniture. [Wimmer]

o o o

A NEW OFFICE . . . The Industrial Dept. of Dravo Corp., Pittsburgh, opened a Chicago office to handle sales and service of Dravo Counterflo Direct Fired Heaters for commercial and industrial heating and Dravo Crane Cab Coolers for air conditioning crane cabs in steel mills, foundries and chemical plants. T. W. Eshbach, who has been active in the heating and ventilating business since 1923, is in charge of the new branch office.

o o o

A NEW COMPANY . . . Cleg F. Beilfuss, who has been associated with Scott Paper Co. for many years, will resign his position as Chicago retail divisional sales manager in October, to form an organization specializing in the sale of food products, to be known as the C. B. Sales Co. It will be located in Chicago.

o o o

NEW FACILITIES . . . A new department, to be known as the Service Sales Div., has been organized by The White Motor Co. to function under General Sales in the development and supervision of a comprehensive sales program for all forms of service. J. D. Courtright, former manager of the Kansas City Branch of the White organization, has been named to head the new division with headquarters at Cleveland.

In line with its policy of offering complete service facilities in all parts of the country, the company has announced the establishment of a new factory sales and service branch at San Antonio, to serve truck and bus operators in this important Texas area. Jerry L. Kuhl has been named manager of the new branch.

o o o

A NEW SALES OFFICE . . . The A. B. Farquhar Co., has announced the establishment of a sales office in Washington, D. C., with C. R. Heller in charge as the Washington representative. Mr. Heller will represent the company in the sale of materials handling conveyors, farm machinery and hydraulic presses and will confine his efforts to governmental and armed service bureaus located in Washington and Foreign Purchasing Commissions.

• •

NEW MEMBERS . . . The Material Handling Institute has announced three new firms as members: Robbins & Myers, Inc., Hoist and Crane Div., Springfield, Ohio; Modern Materials Handling, Boston; and American Engineering Co., Philadelphia.

MADISON, WIS. — *LOW INSURANCE RATE*

CENTRAL
STORAGE AND WAREHOUSE COMPANY

COLD STORAGE
DRY STORAGE
FREEZER STORAGE

612 W. Main St., Madison 3

MILWAUKEE, WIS. — *Service Minded*

"Store American" For Economical Efficient Experienced Complete Merchandise Warehousing

SPECIALISTS IN POOL CAR DISTRIBUTION

AMERICAN WAREHOUSE CO.

General Office 525 East Chicago St. | Milw. Whse. Ass'n | Wis. Whse. Ass'n | *House No. 2* 302 North Jackson St.

Private Siding—Chicago & North Western Ry. 3rd Ward District

MILWAUKEE, WIS.

MILWAUKEE'S *only* COMPLETELY PALLETIZED WAREHOUSE

• Over 1½ Million Cubic Feet First Floor Space •

ATLAS STORAGE

DIVISION OF P&V-ATLAS INDUSTRIAL CENTER INC.
647 W. VIRGINIA ST. MILWAUKEE 1, WIS.

HANSEN STORAGE CO.

126 N. JEFFERSON ST., MILWAUKEE 2, WISCONSIN
Wisconsin's Largest Warehouse

STORAGE SPACE — BOAT DOCKAGE
POOL CAR DISTRIBUTION — STEVEDORING
CUSTOMS BONDED SPACE — MOTOR TRUCK SERVICE

Since 1904 we have served the Jobbing Trade.

Representatives:
AMERICAN CHAIN OF WAREHOUSES
Chicago: Tel. Harrison 1496 • New York: Tel. Plaza 1234
INTERLAKE TERMINALS, INCORPORATED
New York.....Tel. Murray Hill 5-8397

MILWAUKEE, WIS.

LINCOLN
WAREHOUSE COMPANY

MERCHANDISE WAREHOUSING AND DISTRIBUTION
LOCATED IN HEART OF BUSINESS DISTRICT
Offices: 206 W. Highland Ave., Milwaukee 3
Member of A.W.A.—W.W.A.—M.W.A.

MILWAUKEE, WIS.

NATIONAL TERMINALS CORPORATION

954 So. Water Street, Milwaukee 4 — **Tel. Mitchell 5644**

Milwaukee's most modern and best located Waterfront Warehouse. Automobile storage. Warehousing on unit basis for spot stocks. Storage "in transit". Pool car distribution. Customs Bonded.
Member of A. W. A. & W. W. A.
New York Office: 122 E. 42nd St., Phone Murray Hill 5-5960, New York 17, N. Y

MILWAUKEE, WIS. — *"Milwaukee's Finest"*

National Warehouse Corporation
— STATE BONDED —

EVERY CONCEIVABLE WAREHOUSE & DISTRIBUTION SERVICE AFFORDED

Fidus et Fidelis — ASSOCIATED WAREHOUSES INCORPORATED

A.D.T. Service
468 E. Bruce St.
Milwaukee 4
C. & N.W.R.R. Siding

MILWAUKEE, WIS. — **—Phone Marquette 7091**

TERMINAL STORAGE CO.

100-112 W. Seeboth St.
Milwaukee 4, Wisconsin

Cooler, Freezer and General Merchandising Storage
Deep Water Dock, Private Siding on C.M.St.P. & P. R.R.

SHAWANO, WIS. — *Modern Building, Reinforced Concrete Construction*

SHAWANO TERMINAL WAREHOUSE

120 E. Richmond Street — **Shawano, Wisconsin**
General Merchandise Storage
Low Insurance Rates
POOL CAR DISTRIBUTION
Licensed and Bonded. Private Siding Chicago & Northwestern R. R.
Member Wis. W. A.

SHEBOYGAN, WIS.

MEMBER MAYFLOWER WAREHOUSEMEN'S ASSOCIATION

SHEBOYGAN
WAREHOUSE & FORWARDING CO.

A Merchants & Manufacturers Warehouse

11th and Illinois Ave. — Sheboygan, Wis.
Member of A.W.A.—May. W.A.—Wis. W.A.

TORONTO, ONT. — M. A. RAWLINSON, *Pres. & Gen. Mgr.*

M. RAWLINSON, Ltd.

Established 1885 — **610 Yonge St., Toronto 5, Can.**

Seven Buildings to Meet All Requirements for Modern Storage and Distribution
Customs Bonded. Pool Car Distribution. Household Goods Moved, Packed, Shipped and Stored.
Members of CanWA—NFWA—SAIFB—FWRA—TC&W—ALLIED VAN LINES

MONTREAL, QUE.

St. Lawrence Warehouse Inc.

1-VAN HORNE AVENUE, MONTREAL, CANADA

200,000 SQ. FT. OF MODERN FIREPROOF SPACE LOCATED IN THE EXACT CENTER OF THE CITY OF MONTREAL

Canadian Customs Bond. Private Siding—8 Car Capacity—Free Switching—All Railroad Connections

New York Representative: Frank J. Tully
277 Broadway, New York 7 — Phone Worth 2-9428

MONTREAL, QUEBEC — Established 1908 W. G. KENWOOD, Pres. & Man. Dir.

Westmount Transfer & Storage Ltd.

205 Olivier Ave., Westmount, P. Q.

LOCAL AND LONG DISTANCE MOVERS
Private Room System for Storage
CRATING, PACKING and SHIPPING
Charges Collected and Promptly Remitted
Member: N. F. W. A., Can. W. A.

CANADIAN WAREHOUSEMENS ASSOCIATION — CWA — OFFICIAL SEAL

Index to General Advertisers

Public warehouse advertisements start on page 91 and are arranged alphabetically by states, cities and firms.

Battery-driven

Industrial Trucks

Electric power has long since established top position for economy—and dependability—in the operation of industrial machines and processes. The fact that storage batteries make possible the use of low cost central station power on mobile equipment is one of the reasons why the *battery-powered* industrial truck consistently demonstrates an operating cost well under that of other types.

Materials flow easily, quickly, safely and at the lowest-cost per ton when handled with *battery-powered* self-loading industrial trucks.

Send

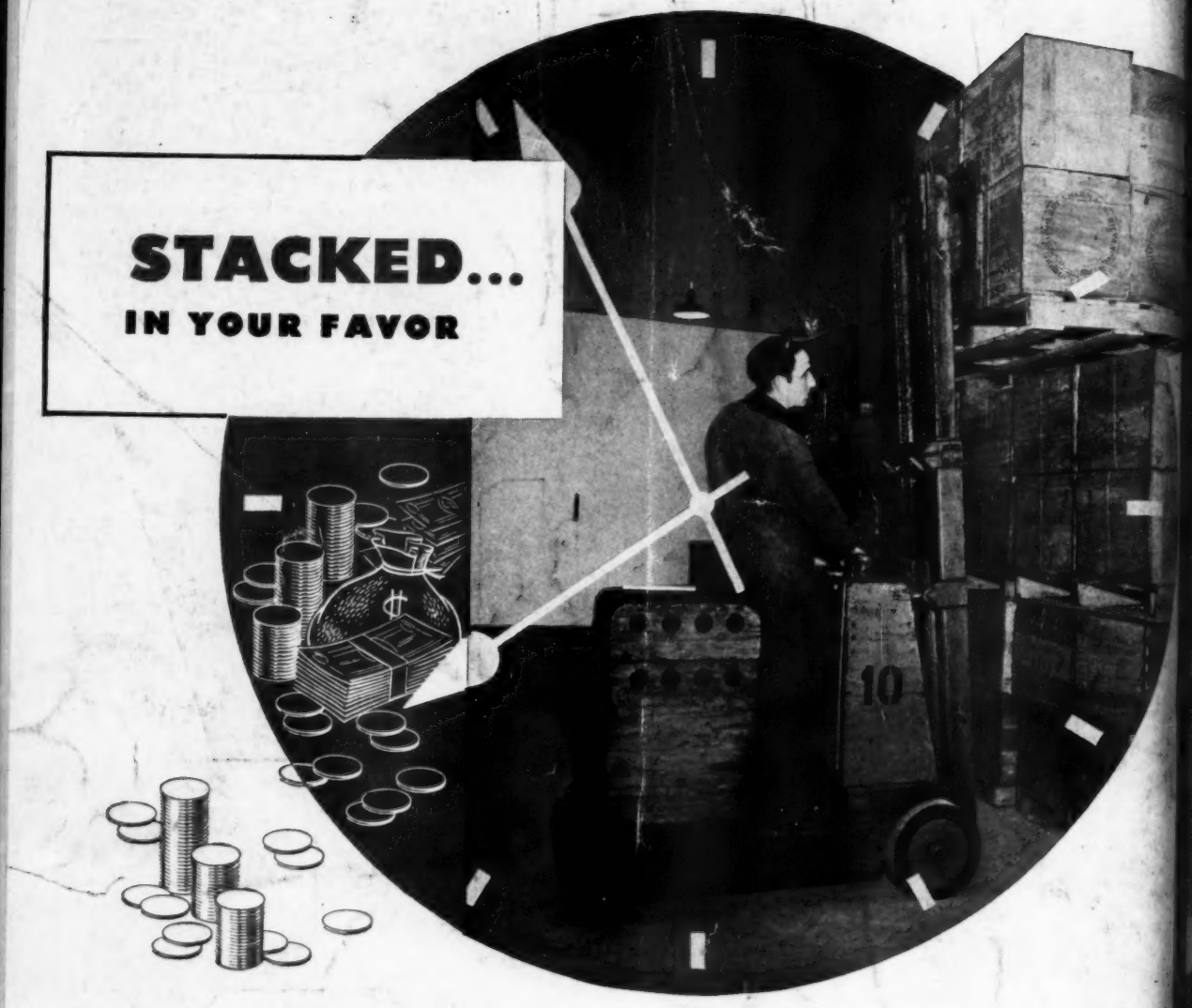
FOR THESE BOOKLETS . . .

Two illustrated booklets—MATERIAL HANDLING HANDBOOK and UNIT LOADS—may help you detect and correct excessive cost wherever you move or store materials.

The Electric Industrial Truck Association

2928D Forty-first Avenue, Queens Plaza, Long Island City 1, N. Y.

STACKED...
IN YOUR FAVOR



You'll find good housekeeping at Harborside . . . every modern facility for the safe, swift, efficient handling and storage of your goods.

We're mechanized to the hilt . . . 100 per cent palletized. Modern handling methods permit the most economical utilization of storage-space. Personnel are specially trained for fine performance and work under seasoned management.

What's the pay-off for you? Plenty! You save valuable time, as your products are expertly handled through receiving, storage, and shipping areas. Damage-hazards to your merchandise are minimized by the elimination of manual lifting, shifting, and high-tiering operations.

These are some of the convincing reasons for using Harborside—the world's greatest rail-water terminal —as your base of operations in the New York metropolitan region. For more details, write us today.

★ ★ ★

Harborside is located directly opposite Cortlandt Street, Manhattan. Direct connection with all railroads and with steamships, via lighterage. 36-car placement at one time. Only five minutes to the Holland Tunnel and trunk highways.

HARBORSIDE

Gateway to the World

WAREHOUSE COMPANY, INC. • 34 EXCHANGE PLACE, JERSEY CITY 3, N. J.